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MANAGEMENT OF ACUTE PANCREATITIS

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Although dissenting opinions continue to be expressed,[1] the prevailing attitude today in the management of acute pancreatitis is one of conservatism.[2] This paper is concerned with a basically conservative approach to the treatment of this disease, and it is intended to outline the principles underlying such an approach and to describe some of the means of attaining the objectives of the treatment. Except for suggestive differences in clinical severity and degree of chemical alterations, precise distinction between acute edematous or interstitial pancreatitis and acute hemorrhagic necrosis of the pancreas is impossible. The eventual progress of the disease cannot be accurately foretold when the patient is first seen. Hence, during the early phase of an acute attack, the seemingly mild case and the obviously severe one are treated as basically alike in this plan of management. Moreover, the basic treatment applied in cases of primary acute pancreatitis does not differ significantly from that used for acute recurrences or acute exacerbations of chronic disease.

Success or failure of the conservative management of acute pancreatitis depends to a large degree on the manner and care with which the various available therapeutic measures are selected and applied. Intelligent use of these measures requires constant awareness of the clinical situation and the physical and chemical changes taking place within the patient. It is of the utmost importance, therefore, that the patient be observed carefully from the very outset of treatment. The initial appraisal of the clinical situation should include assessment of chemical and electrolyte status as shown by appropriate laboratory tests. After this, the general appearance of the patient, his temperature, pulse, blood pressure, cardiovascular status, abdominal signs, renal output, fluid intake, blood cell count, and concentration of crucial serum electrolytes must all be determined at frequent intervals. The information obtained from these observations serves to guide treatment and determines the choice of measures to be applied.

Generally speaking, the conservative plan of management is aimed at attaining certain basic objectives that, if realized, will ultimately result in complete subsidence of the acute inflammatory process. These objectives and some of the measures used to attain them follow.

RELIEF OF PAIN

Nitrites.—Nitrites are thought to diminish pain of acute pancreatitis by directly relaxing smooth muscle and thereby reducing duodenal and ductal spasm. They may also lessen pain by overcoming vasoconstriction. The duration of action of these drugs, however, is extremely short and, in my experience, their influence on pain is generally negligible when used alone in cases of acute pancreatitis. Furthermore, their hypotensive action is undesirable, especially in acutely ill patients who may already be in a shock-like state. When nitrites are used to combat the pain of acute pancreatitis, they are ordinarily given either as inhalations of a pearl of amyl nitrite or as 0.6 mg. tablets of glyceryl trinitrate (nitroglycerin) that are permitted to dissolve in the sublingual pouch.

Morphine Sulfate.—Morphine sulfate and the other opiates and synthetic analgesics have the disadvantage of inducing duodenal and ductal spasm. Through this action, they may aggravate the local situation in acute pancreatitis, even though they may succeed, through their central effect, in temporarily relieving pain. The spasmogenic effects of meperidine (demerol®) hydrochloride seem to be less pronounced and less sustained than those of the other members of this group of drugs. For this reason it would appear to be the analgesic of choice. The usual therapeutic dose is 100 mg. given subcutaneously every four hours or even more frequently if necessary. The simultaneous administration of nitrites may partially counteract the spasm induced by meperidine hydrochloride and the other analgesics with related action.

Tetraethylammonium Chloride.—Tetraethylammonium chloride may relieve pain so effectively in some cases of acute pancreatitis that narcotics are not required.[3] The drug effectively blocks both sympathetic and parasympathetic impulses at the ganglionic synapse

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but does not block painful afferent stimuli from the gastrointestinal tract.[4] Its pain-relieving action in acute inflammation of the pancreas is probably principally due to reduction in pancreatic secretory activity. The latter results directly from interruption of transmission of excitatory impulses to the pancreas and indirectly from depression of gastric secretion and thereby diminished secretin formation in the upper small intestine. Relief of pain may also be due in part to reduction in tone of the sphincter of Oddi as a result of vagal block.[5]

Hypotension and other distressing side reactions following the administration of tetraethylammonium chloride detract from its usefulness in patients acutely ill with pancreatitis. The initial intravenous dose of tetraethylammonium (etamon®) chloride should not exceed 1.0 cc. If there is no untoward reaction, subsequent doses may be increased up to 5.0 cc. If given intramuscularly, this dose or even larger ones may be repeated as often as every four hours to control pain.

Methantheline Bromide.—Methantheline (banthine®) bromide has also been reported to relieve pain remarkably in patients with acute pancreatitis.[6] The beneficial effect of this drug is likewise probably due chiefly to depression of pancreatic secretion [7] resulting from its anticholinergic action. The vagal depressing action of methantheline bromide may also help to diminish pain by overcoming spasm and reducing hypertonicity in and about the sphincter of Oddi.[5] For prompt and effective results in acute pancreatitis, parenteral administration of methantheline bromide is required in amounts of 50 to 100 mg. every four to six hours. Doses of this magnitude, when administered parenterally, are almost invariably attended by side reactions, such as dryness of the mouth. These may become so intolerable as to prohibit further use of the drug.

Other cholinergic blocking agents, notably hexamethonium bromide (C-6), may prove to be as effective in some cases as tetraethylammonium chloride and methantheline bromide for essentially the same reasons.

Procaine Hydrochloride. — Procaine hydrochloride administered intravenously has been used successfully to control pain in acute pancreatitis.[8] After the intravenous injection of procaine solution, pain may be abolished for many hours or even longer, and the general clinical situation may be significantly improved. Among its pharmacological properties, procaine hydrochloride is known to possess local anesthetic, analgesic, and antihistaminic actions. Also, it is known to bring about vasodilatation and to exert a spasmolytic action on smooth muscle. Although these several actions, and possibly others, are probably responsible for the observed beneficial effects of procaine in acute pancreatitis, the precise mechanisms that bring them about after intravenous administration of the drug are poorly understood. When procaine is given intravenously it is rapidly hydrolyzed and quickly disappears from the plasma.[9] This encourages the thought that one of the breakdown products of procaine hydrochloride, possibly dimethylaminoethanol, which persists in a relatively high concentration, may actually be responsible for some of the pharmacological properties attributed to the parent drug.[9]

Intravenous injection of procaine hydrochloride is not without danger, and great caution must be exercised in its use. Preliminary administration of a barbiturate, while not considered mandatory, would appear wise. Tests for sensitivity to the drug and slow administration are also wise precautions. During administration, the blood pressure should be checked at intervals to detect any decrease, and the pulse should be observed for alteration in rate or irregularity in rhythm. The patient should be carefully watched for the appearance of toxic symptoms, such as excitement, restlessness, dizziness, irritability, numbness, muscular twitching, skin reaction, or dyspnea. A suitable barbiturate should be on hand for instant administration intravenously, if signs of excess central nervous system stimulation should develop. An artificial respirator should also be available in case of respiratory difficulty.

Despite the extensive use of procaine hydrochloride given intravenously in the treatment of arthritis and other painful conditions, the dose and method of administration of the drug are not standardized. The use of a "procaine unit," consisting of 4 mg. of procaine hydrochloride per kilogram of body weight, given in 0.1% isotonic sodium chloride solution or in 5% dextrose in water over a period of 20 minutes, has been proposed and shown to be relatively safe.[10] Some, however, prefer to add 1 gm. of procaine hydrochloride to 1,000 cc. of isotonic sodium chloride or glucose solution and to give this infusion at rates ranging from as low as 20 to as high as 75 drops per minute. Still others advocate the use of smaller quantities of more concentrated solutions given over a short period of time. Thus, Horan [11] employs 10 cc. of 0.25% sodium chloride solution of tetracaine (pontocaine®) hydrochloride and gives it intravenously in three to five minutes. Similarly, Smith and Whitehouse [12] use 10 cc. of 0.4% or even 0.8% solution of tetracaine hydrochloride, which they administer intravenously in two minutes. For the treatment of acute pancreatitis, Longo and Sosa Gallardo [8] give 10 to 20 cc. of 1% procaine hydrochloride solution intravenously at the rate of 1 cc. in 20 to 30 seconds. This injection is repeated every three to four hours or may be followed by a slow intravenous drip (40 to 50 drops per minute) of a solution containing 1 gm. of procaine hydrochloride.

Nerve Block.—In cases of severe acute pancreatitis, particularly those with pronounced pain resistant to or only partially relieved by drugs, nerve block may be used. The most commonly employed nerve-blocking procedures are paravertebral sympathetic block and splanchnic block.[13] The diminution in pain effected by these procedures probably results principally from their interference with pain transmission by visceral afferent fibers originating in and about the pancreas. They may also influence pain by vasomotor and secretory changes that may be produced in the pancreas as a result of anesthetization of the sympathetic nerves supplying this organ. Paravertebral sympathetic block is directed at selected segments of the ganglionated sympathetic trunk; splanchnic block at the splanchnic nerves. Of the two, sympathetic block has been used more extensively.

If the amount of anesthetic agent deposited about the sympathetic ganglions during paravertebral sympathetic block is excessive and becomes widely diffused or if the needle is aimed at the point of emergence of the spinal nerves from the intervertebral foramina instead of at the more anteriorly situated sympathetic ganglions and trunk, somatic afferent fibers may also be affected. The point to be emphasized is that, even though some degree of anesthetization of somatic nerve fibers may occasionally occur, such an effect is not to be expected as a regular part of a properly executed sympathetic block. The 6th to the 11th thoracic sympathetic ganglions are usually blocked on the side on which pain is severest. The bilateral afferent innervation of the pancreas,[14] however, frequently requires block of both sides for effective results. Even with bilateral block, pain is not always relieved. Furthermore, relief is often only temporary, so that the block often has to be repeated. In addition, the extensive sympathetic interruption that results from paravertebral block, especially when applied bilaterally, may cause a fall in blood pressure. The latter is particularly undesirable in patients already in a shock-like state because of severe acute pancreatitis.

Fractional epidural block has proved to be an effective method of overcoming pain in severe acute pancreatitis.[15] In my experience and that of my colleagues, it has yielded more consistent results than paravertebral sympathetic block. In addition, we believe it offers several advantages over the latter. Among these may be mentioned the bilateral character of the analgesia produced and the fact that there is regular anesthetization of somatic as well as visceral afferent pain fibers.

The technique that we employ [15a] consists of injecting an anesthetic solution into the epidural space through an indwelling catheter. The catheter is introduced into the epidural compartment at the interspace between the first and second lumbar vertebrae and is then threaded through the compartment until its tip comes to lie at the level of the interspace between the fifth and sixth thoracic vertebrae (corresponding to the level of the eighth thoracic spinal cord segment). From 10 to 20 cc. of a solution composed of 1% procaine hydrochloride and 3,4-dihydroxynorephedrine (cobefrin®) hydrochloride in 1:40,000 dilution in isotonic sodium chloride solution is introduced initially, and fractional instillations in amounts of 10 cc. are then made at intervals as required to relieve pain. In most cases, fractional instillations are required at intervals of from 12 to 24 hours, but this interval varies depending on the needs of the individual case. Similarly, the period of time over which fractional instillations must be given varies considerably and is determined on an individual basis. We have found it necessary to continue instillations for four or five days in most cases, and we have continued them in some cases for as long as a week. Throughout the entire time that fractional instillations are required, the epidural catheter is retained in place. This affords another distinct advantage over paravertebral sympathetic block, since it obviates the need to subject the patient to the discomfort of a new injection each time additional anesthetic solution is required.

Despite its merits, fractional epidural block is not invariably effective in relieving pain of severe acute pancreatitis. Moreover, it has been our clinical observation [15a] that the over-all course of the disease is not significantly altered even when pain is successfully alleviated. Similar observations have been made by Casey [16] in dogs with experimentally produced acute pancreatitis. It would seem, therefore, that fractional epidural block should be used in conjunction with all other measures useful in the treatment of acute pancreatitis and should not be considered a substitute for them.

COMBATING SHOCK AND CORRECTING FLUID AND ELECTROLYTE IMBALANCES

Plasma, blood, and sodium chloride solutions are given in amounts required to restore fluid volume, sustain blood pressure, and insure an adequate urinary output. Glucose, either in distilled water or added to isotonic sodium chloride solution, must be given with circumspection to these patients. Some thought has been given to the influence of elevated blood sugar values on pancreatic secretion. Experimental evidence is at variance as to whether increased secretion follows hyperglycemia. The most recent study of this problem, in which unanesthetized dogs were used and in which methods were employed that overcame objections to previous observations, indicated that pancreatic secretion is not significantly modified by considerable increases in blood sugar.[17] A more impelling reason to avoid indiscriminate administration of glucose is the impairment of carbohydrate metabolism that may be associated with acute diffuse pancreatic inflammation.[18] Determination of blood sugar values, therefore, should be made before glucose is given, and check determinations should be obtained at intervals. Even in the absence of obviously disturbed metabolism of carbohydrates, it is probably wise to give glucose solutions slowly in concentrations not exceeding 5%. As an added precaution, insulin may be given simultaneously with the glucose to counteract any inapparent impairment of carbohydrate metabolism. For such purposes, 5 to 10 units of regular insulin may be given subcutaneously with each 50 gm. of glucose administered.[19] If there is obvious disturbance in carbohydrate metabolism with hyperglycemia, insulin may be required to control the situation. Whenever insulin is used, however, it is well to bear in mind the danger of reducing blood sugar too sharply. Hypoglycemia is a potent vagal stimulus and should be avoided in patients with acute pancreatitis.

At least two other electrolytes deserve special thought when considering alterations in body chemistry incident to acute pancreatitis. Surprisingly large amounts of calcium may be transferred from the serum to areas of fat necrosis so that soaps are formed from the hydrolyzed fats.[20] Other mechanisms, such as excretion of calcium into the bowel, may also contribute to the production of hypocalcemia.[21] Hypocalcemia thus produced may produce neuromuscular alterations and even cause myocardial abnormalities. The degree of hypocalcemia bears a close relationship to the severity of the disease and is of definite prognostic import.[22] Lowering of serum calcium

may be encountered at variable intervals after onset, usually from the second to the fifth day, and may persist for two weeks or even longer.[23] It is important, therefore, from the standpoints of diagnosis and prognosis, to make frequent determinations of serum calcium. It is equally important, therapeutically, to counteract the loss of calcium from the serum by giving calcium as often as necessary. For this purpose, 20 cc. of 10% calcium gluconate may be given intravenously.

Potassium is the other electrolyte meriting particular attention. Significant decrease of intracellular and serum potassium may result from tissue destruction and urinary loss, diminished intake during the phase of acute illness, the influence of increased secretion of 11-oxysteroids, withdrawal of fluids by nasogastric suction, and intravenous administration of glucose. Depletion of this important electrolyte is much more frequent than hitherto suspected [21] and may be responsible for some of the asthenia, myocardial derangement, and other phenomena seen in patients acutely ill with pancreatitis. Inclusion of potassium salts in parenterally administered fluids is a basic need if hypokalemia exists. It is important to bear in mind, however, that impairment of renal function is commonplace in acute pancreatitis.[24] Hence, potassium salts should not be given without control by frequent determinations of serum potassium levels and perhaps electrocardiographic tracings as well.

REDUCTION OF PANCREATIC SECRETORY ACTIVITY

To reduce pancreatic secretion to a minimum, it is essential to remove all stimuli known to provoke secretory activity. This requires (1) keeping all foodstuffs out of the stomach and intestine, (2) removal of gastric secretion to avoid elaboration of secretin by acid in the upper small intestine, and (3) depression to the fullest extent possible of all nervous influences capable of stimulating either the stomach or the pancreas.

The first requirement is very simply assured by withholding all food and drink. The second requirement may be met by means of constant suction applied through a tube inserted in the stomach through the nose. Care should be taken to place the tip of the tube as close to the pylorus as possible in order to minimize passage of gastric juice into the duodenum. Suction may be interrupted at intervals of about 15 minutes every second hour, at which time an antacid may be introduced into the stomach. The third requirement may be fulfilled by relieving pain through the use of the measures previously described, general sedation of the patient, and the use of drugs that depress vagal activity. Barbiturates not only reduce nervous excitation but also depress pancreatic secretion.[25] Phenobarbital sodium, 120 to 180 mg., administered subcutaneously as often as every six hours is a suitable drug for these purposes. In order to interrupt secretory impulses transmitted by the vagus nerves, drugs with parasympatholytic or anticholingeric action are used. Among these, atropine has enjoyed the longest and widest use. It is usually given in doses of 0.6 mg. subcutaneously every four to six hours. There is some question as to whether atropine in these doses achieves the pancreatic depressant effects in man that it characteristically produces when given in much larger doses to experimental animals.[26] It seems probable that any reduction in pancreatic secretion resulting from the use of atropine in man is due more to diminution in gastric secretion with lessened formation of the pancreatic stimulating hormone, secretin, in the upper small intestine than to direct secretory depression of the pancreas. Methantheline bromide has more recently been shown to diminish pancreatic secretion [7] and, as mentioned earlier, to relieve pain in patients with acute pancreatitis when given parenterally in doses of 50 to 100 mg. every four to six hours. The depressing effect of this drug on pancreatic secretion is also probably due in large part to its action in diminishing gastric secretion and thereby secretin formation. The same is doubtless true for tetraethylammonium chloride.

Sympathomimetic drugs generally inhibit pancreatic secretion, perhaps by decreasing blood flow through the gland.[27] That effect and the vasoconstriction probably responsible for it are definite deterrents to the use of these drugs in these circumstances. Of this group of drugs, ephedrine sulfate is the one used most often in patients with acute pancreatitis. The usual therapeutic dose is 25 to 50 mg. given subcutaneously, every six hours or even oftener.

X-ray radiation has been given some consideration as a method of temporarily inhibiting pancreatic secretion. Temporary diminution of pancreatic secretion, notably of enzyme output, has been observed after irradiation in dogs with pancreatic fistulas,[28] and serum amylase levels lower than control values have been noted in dogs receiving roentgen therapy after experimentally produced acute pancreatitis.[29] Clinical benefit manifested by shortening of episodes of acute pancreatitis is also believed to have followed roentgen radiation in some patients treated by this means.[30] Despite these encouraging observations, irradiation appears to have little to recommend it as a therapeutic adjuvant in acute pancreatitis. The secretory-inhibiting action of roentgen radiation seems to be variable, and dosage is still unsettled. More important, the effects of radiation on the inflamed human pancreas are unknown. It is entirely possible that irradiation may further injure an already damaged organ. Moreover, radiation sufficient to affect pancreatic secretion significantly may well produce deleterious changes in structures adjacent to the pancreas, even though limited observations made in healthy dogs failed to show such changes following single or repeated exposures to irradiation.[28]

COMBATING INFECTION AND PERITONITIS

Observations in dogs with experimentally produced acute pancreatitis have rather conclusively demonstrated the lifesaving propensity of penicillin [31] and aureomycin.[32] Aureomycin and probably oxytetracycline ("terramycin") would appear to be the antibiotics of choice for clinical use because of their concentration in the bile [33] and their greater effectiveness against the type of organisms commonly found in cases of peritonitis.[34] The desirable route of administration of these drugs is by mouth because of their influence on bacterial growth in the intestinal tract. Experimental observations in dogs showed that aureomycin was much more effective when

given orally than when administered parenterally.[32] It appeared from these studies that the bacteria recovered from animals that died were more likely invaders from the gastrointestinal tract than organisms normally resident in the pancreas or liver. Oral administration may be accomplished in patients with acute pancreatitis by introducing a suspension of 0.5 gm. of aureomycin or oxytetracycline through the nasogastric tube every six hours, at times when suction is temporarily stopped and antacids given. If this results in nausea or is otherwise not feasible, either drug may be given intravenously in amounts of 0.5 to 1.0 gm. every 12 hours depending on the severity of the process.

In addition to the foregoing measures, two other means of approach deserve mention. There is reason to believe that abnormal tryptic activity is an important factor in lethal pancreatic necrosis. Trypsin inhibitor, derived from soybean, has been shown to control abnormal tryptic activity successfully in dogs and promises to be of clinical value in patients with acute pancreatitis.[35] Considerable work has yet to be done, however, before the safety as well as the limitations of this agent can be properly assessed. Corticotropin (ACTH) has thus far been given very limited trial in cases of acute pancreatitis. The few observations currently available indicate that, even though fall in serum amylase and improvement in shock may follow administration of corticotropin, progression of severe hemorrhagic pancreatitis is not prevented.[36] The concomitant use of antibiotics appears to be particularly important in patients with severe pancreatic and peritoneal infection who are given this preparation. While no conclusions can be drawn at present, it remains to be proved that corticotropin and cortisone are of real value in the treatment of acute pancreatitis.

If, despite full use and guided application of the various measures outlined above, the clinical situation fails to improve or becomes still more serious because of progressive and spreading peritonitis, unyielding obstructive jaundice, or the development of complications such as hematoma, acute cystic formation, or localized suppuration, surgical intervention may become mandatory. What is done at operation is determined by the findings when the abdomen is explored. It is generally agreed, however, that the surgical procedures employed under these circumstances should be the least extensive ones feasible. Most surgeons are content simply to provide adequate drainage of the lesser peritoneal sac and usually to establish external biliary drainage. More definitive corrective procedures directed at the pancreas or biliary tract are postponed until the acute phase of pancreatitis has subsided.

On the other hand, if the clinical picture shows progressive improvement, conservative medical measures should be continued until the inflammatory process appears to have subsided. There are no fixed criteria determining when the nasogastric tube may be removed, mouth feedings begun, and administration of the several medicaments stopped. These are all determined individually and depend on the clinical status of the patient. As the situation improves, the rigidity with which these measures are applied is gradually relaxed. With subsidence of the clinical signs of pancreatic and peritoneal inflammation, food and fluids may cautiously be given by mouth. At the beginning, warm water and tea in 30 cc. amounts may be given, and cereal gruels, strained fruit juices, clear nonfatty diluted broths, gelatin preparations, and junket may then be progressively added. Eventually an adequate diet, low in fat and high in protein and carbohydrate, is provided. Hard candies and a mixture of 120 gm. of skim milk powder in 1,000 cc. of skim milk may be used as the diet is increased and may also be incorporated in the full diet, since they are cheap, palatable, and useful means of supplying carbohydrate and protein.

After complete subsidence, studies should be undertaken to determine the presence of associated biliary tract disease and the type and extent of residual pancreatic damage. Depending on the results of these studies, an interval operation may be performed to correct any demonstrated biliary tract disease, overcome persistent narrowing of the sphincter of Oddi, drain any pancreatic cyst or residual fluid collection in the lesser peritoneal sac, or remove readily accessible pancreatic calculi.

Finally, prior to discharge, the patient should be made to realize that recurrences are possible and perhaps probable. Overeating and the use of alcoholic beverages, both of which appear to be precipitating factors or at least common precursors of acute attacks, should be rigidly avoided. Small frequent feedings, relatively low in fat, are preferred, and obesity should be avoided. Although none of these precautions guarantees that acute pancreatic inflammation will not recur, they should be observed with the hope of reducing the possibility of future attacks.

SUMMARY

The management of acute pancreatitis is neither standardized nor universally agreed on. The prevailing attitude, however, appears to be one of conservatism. The principles underlying the conservative approach are considered, and some of the means of attaining the objectives of this form of treatment are described.

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Ambulatory Treatment of Fractures.—There is now a wave of enthusiasm regarding the ambulatory treatment of fractures. No one believes in earlier motion in the treatment of fractures than the writer, but the laws of Huner and Hilton on rest and immobilization must not be forgotten. Too early weight-bearing frequently brings about excessive, painful callous formation and in certain instances nonunions and permanent disabilities. In certain fractures about the ankle joint with very little bone involvement and no displacement or any possibility of a displacement of the fragments, early weight-bearing soon after injury may be allowed provided a plastic splint and walking iron have been properly applied, and when supervision can be carried out frequently under ideal and controlled conditions.

We have concluded that the patient in the majority of such instances fortunately will control the overenthusiastic doctor who forces too early weight-bearing of the ankle and leg fractures, because of the pain which he encounters when carrying out such early weight-bearing.—H. E. Conwell, M.D., Certain Problems in Fracture Treatment, *Journal of the Medical Association of Georgia*, August, 1952.

EFFECTS OF ETHYL ALCOHOL ON CEREBRAL BLOOD FLOW AND METABOLISM

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The ingestion of ethyl alcohol is known to produce dilatation of the blood vessels in the skin and, to a lesser extent, those in other tissues. For this reason, it has been advocated for the treatment of peripheral vascular disease and angina pectoris.[1] Its use as a cerebral vasodilator has also been recommended,[2] because of the dilatation of pial vessels observed in animals given large amounts of ethyl alcohol intravenously. The symptoms of acute alcoholic intoxication are generally believed to be caused by depression of the central nervous system. In vitro studies have shown, however, that alcohol in concentrations up to 2% produces an increase in oxygen consumption, while in concentrations greater than this it produces a decrease.[3] A decrease in cerebral arteriovenous oxygen difference has been found during alcoholic intoxication, but this has been attributed to a reduction in cerebral oxygen utilization rather than to an increase in cerebral blood flow.[4] This paper presents our observations on the cerebral blood flow and oxygen consumption in patients with various stages of alcoholic intoxication resulting from either intravenous administration of ethyl alcohol or the ingestion of large amounts of whisky.

METHOD

Fifteen patients convalescing from a variety of medical illnesses (such as pneumonia and arthritis) were given varying amounts of ethyl alcohol intravenously in a 5 to 10% solution. The age of the patients ranged from 18 to 65 years, the average being 40 years. Two had evidence of cerebral disease, of whom one had malignant hypertension and encephalopathy and the other, severe mental deficiency. The total dose of alcohol ranged from 4 to 54 cc. of absolute alcohol and averaged 22 cc. Within 15 to 45 minutes after the solution was given, visible evidence of peripheral vasodilatation and a subjective feeling of warmth appeared in most patients. Most of the patients showed symptoms of mild intoxication, such as drowsiness, euphoria, increased volubility, and inappropriate weeping or laughter. The alcohol levels in the blood ranged from 15 to 137 mg. per 100 cc., with a mean of 68 mg. per 100 cc. There was a good linear correlation between the dose of alcohol administered intravenously and the blood alcohol level ($r = 0.93$). The slope of the line of regression represented a blood alcohol level of 22.5 mg. per 100 cc. for each 0.1 gm. of alcohol administered per kilogram of body weight. Blood alcohol levels of arterial blood were done by the colorimetric method of Gibson.[5]

The cerebral blood flow in these patients was measured by the nitrous oxide technique of Kety and Schmidt,[6] with slight modifications.[7] Fifteen to 30 minutes after completion of the control blood flow procedure, the infusion of alcohol was begun and was continued through most or all of the second cerebral blood flow determination. The cerebral oxygen consumption was obtained by multiplying the cerebral blood flow by the arterial-internal jugular venous oxygen difference. The cerebral vascular resistance was obtained by dividing the mean arterial pressure by the cerebral blood flow. The mean arterial pressure was measured between the blood samplings with a damped mercury manometer connected to the arterial needle.

Arterial and venous blood samples were drawn over a 20 to 30 second period just before and just after the cerebral blood flow determination was done. Gas analysis of the blood samples for oxygen and carbon dioxide was done by the combined procedure described by Peters and Van Slyke,[8] and analysis for nitrous oxide was done by the method of Orcutt and Waters,[9] the modifications of both techniques as described by Kety and Schmidt[6] being used. The addition of ethyl alcohol to blood samples in concentrations as high as 400 mg. per 100 cc. was found to have no effect on the accuracy of the nitrous oxide determinations. Hemoglobin concentration was calculated from the oxygen capacity. Arterial pH was determined with the glass electrode of the Cambridge model R pH meter and corrected to body temperature (37 C). Arterial carbon dioxide tension was calculated from the pH, the carbon dioxide content, and the hematocrit with the nomogram of Singer and Hastings.[10] Venous oxygen tension was obtained from the pH and the percent of oxygen saturation, using the dissociation curves of Dill.[11]

Similar studies were performed on a second group of 12 patients who had been brought to the hospital emergency clinic with signs of severe alcoholic intoxication. Most of these patients had been found lying in the streets of Atlanta in drunken stupor, and all were comatose on admission to the hospital. Cerebral blood flow studies were done one to two hours later, at which time three

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Misses Mary Bell, Mary Fordham, and Mary Upshaw and Mrs. Louise Thompson gave technical assistance in this study.

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of the group (W. B., H. S., and J. W.) were still completely unresponsive while the others had aroused to a stuporous state. None of the patients was given any medication or stimulant prior to the initial cerebral function studies. All of the patients had a strong odor of alcohol on the breath. Several patients had vomited, and some had urinary and fecal incontinence. Speech was incoherent and rambling. Blood alcohol levels were obtained in six subjects and ranged from 234 to 413 mg. per 100 cc., the mean being 320 mg. per 100 cc. The other six patients had essentially the same degree of intoxication and would have been expected to show similar blood alcohol levels. The exact amount and type of alcoholic mixture consumed by the patients could not be determined with accuracy, since most of them either had amnesia for the events preceding their stupor or were loath to admit the extent of their drinking. The ages of these patients varied from 30 to 62 years, the average being 42 years. Cerebral blood flow determinations were repeated 15 to 62 hours after the initial procedure, at which time all of the subjects were sober and reasonably alert. There were surprisingly few "hangover" symptoms present. None of the patients had headache, evidence of dehydration, or delirium tremens at the time of the second blood flow determination. Despite a history of chronic alcoholism, the patients appeared to be in fairly good physical condition, with one exception. This was a 62-year-old patient (H. S.) who had severe hypertension and generalized arteriosclerosis.

TABLE 1.—*Mean Values and Standard Deviations for Cerebral Functions Before and During Intravenous Infusion of Alcohol*

	Cerebral Blood Flow, Cc./100 Gm./Min.		Cerebral Oxygen Consumption, Cc./100 Gm./Min.		Cerebral Vascular Resistance, Mm. Hg/Cc./100 Gm./Min.		Arteriovenous Oxygen Difference, Vol. %		Mean Arterial Pressure, Mm. Hg
	Mean *	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	
Control determination	47	± 12	2.8	± 0.3	2.1	± 0.6	6.2	± 0.9	94
Determination during alcohol infusion	50	± 10	2.8	± 0.6	1.9	± 0.4	5.8	± 1.4	89

* All mean values have been calculated from the data on individual patients.

TABLE 2.—*Cerebral Function and Blood Values During and Following Acute Alcoholic Intoxication*

Patient	Cerebral Blood Flow, Cc./100 Gm./Min.		Cerebral Oxygen Consumption, Cc./100 Gm./Min.		Cerebral Vascular Resistance, Mm. Hg/Cc./100 Gm./Min.		Arteriovenous Oxygen Difference, Vol. %		Mean Arterial Pressure, Mm. Hg		Hemoglobin, Gm./100 Cc.	Hematocrit, %	Arterial Alcohol Level, Mg./100 Cc.
	I *	R †	I	R	I	R	I	R	I	R			
H. S.	32	32	0.8	2.6	2.7	3.8	2.7	8.2	85	123	11.7	38	413
J. C.	37	32	1.8	2.7	2.0	3.1	4.7	8.5	75	98	12.8	44	...
G. K.	54	41	2.1	3.0	1.9	2.6	3.9	7.3	101	107	14.1	47	...
J. W.	54	53	2.1	4.0	1.3	1.9	3.9	7.4	70	100	13.1	44	...
R. H.	63	53	2.8	3.6	1.5	2.0	4.5	6.9	95	105	13.2	47	...
L. T.	64	35	2.5	3.0	1.5	3.8	4.0	8.5	97	132	11.3	37	...
W. J. B.	70	67	1.8	3.5	1.3	1.3	2.5	5.2	90	90	14.7	48	...
R. L. W.	73	43	2.5	3.4	1.6	2.6	3.4	7.9	115	111	12.5	37	295
J. B.	78	52	...	2.8	1.4	1.8	...	5.4	109	95	12.9	41	314
B. B.	89	66	2.2	3.9	1.0	1.7	2.4	6.0	86	108	13.7	46	234
C. E.	92	37	2.4	2.2	1.0	3.1	2.6	6.1	93	112	11.9	38	333
S. B.	99	55	3.7	3.9	0.8	1.5	3.7	7.1	82	82	12.8	43	328
Mean	67 ‡	47	2.2 ‡	3.2	1.5 ‡	2.4	3.5 ‡	7.0	92	105	12.9	42	320

* I = during intoxication. † R = following recovery. ‡ Statistically significant difference ($p < 0.01$) from mean value following recovery.

RESULTS

The intravenous administration of small amounts of ethyl alcohol in the 15 subjects produced little change in the mean values for cerebral blood flow, oxygen consumption, or vascular resistance (table 1). Several of these persons, however, showed a slight increase in cerebral blood flow of 9 to 12 cc. per 100 gm. of brain per minute, while one patient had a decrease of 13 cc. per 100 gm. per minute. There was only a slight fall in the mean cerebral arteriovenous oxygen difference and a small decrease in arterial blood pressure. Mean cerebral respiratory quotients before and during alcohol infusion were 0.90 and 0.88, respectively. There was no correlation between either the cerebral blood flow or cerebral oxygen consumption and the individual blood alcohol levels.

In contrast, pronounced alterations were observed in the cerebral functions of the patients admitted to the hospital with severe alcoholic intoxication (table 2). During the acute stage of intoxication there was a significant increase in cerebral blood flow ($p < 0.01$), the mean cerebral blood flow at this time being 67 cc. per 100 gm. per minute. A considerable increase in cerebral blood flow occurred in all but three patients (H. S., J. W., and W. J. B.), as shown in figure 1. Following recovery, the mean cerebral blood flow fell to 47 cc., a decrease of 30%. The three patients who had no essential changes in cerebral blood flow, showed, as will be pointed out, the greatest reductions in cerebral oxygen consumption during alcoholic stupor, with values about one-half those observed following recovery. During intoxication the mean arterial blood pressure was decreased in almost every patient, and a significant reduction in mean cerebral vascular resistance was also observed ($p < 0.01$). Following recovery, the mean cerebral vascular resistance rose from 1.5 to 2.4 mm. Hg per cubic centimeter per 100 gm. of brain per minute. With few exceptions, cerebral oxygen consumption during the acute stage of

alcoholic intoxication was reduced and, following recovery, rose to about normal levels (fig. 2). The mean value for cerebral oxygen consumption when the patients were intoxicated was 2.2 cc. as compared with 3.2 cc. per 100 gm. per minute when they were sober ($p < 0.001$). The mean cerebral arteriovenous oxygen difference dur-

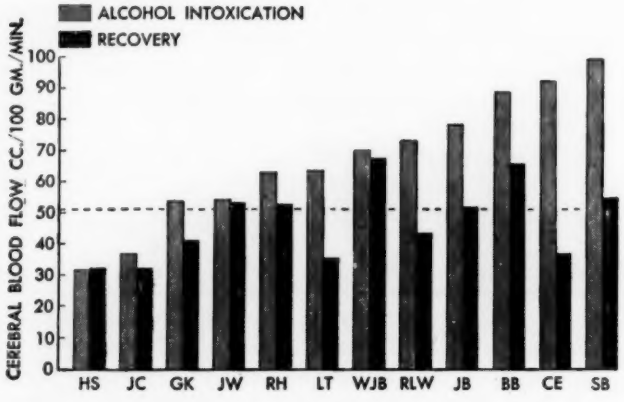

Fig. 1.—Changes in cerebral blood flow in patients during severe alcoholic intoxication and following recovery. The broken line indicates the mean value in control subjects.

ing intoxication was one-half that found after recovery. During alcoholic intoxication there appeared to be an inverse relationship between the degree of increase in cerebral blood flow in the individual patient and the degree of decrease in cerebral oxygen consumption (fig. 3). The patients with the least rise in cerebral blood flow had the greatest reduction in oxygen utilization, while those with the greatest increase in cerebral blood flow had little alteration in cerebral oxygen consumption. The patient (H. S.) with the lowest cerebral oxygen consumption value had no change in cerebral blood flow.

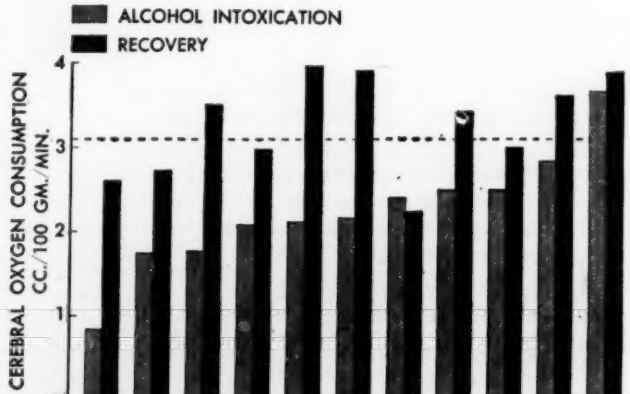

Fig. 2.—Changes in cerebral oxygen consumption in patients during severe alcoholic intoxication and following recovery. The broken line indicates the mean value in control subjects.

Acidosis was present in five of the six patients in whom pH determinations were obtained. The mean arterial pH value in these persons during intoxication was 7.31 in contrast to a value of 7.40 while sober. The arterial carbon dioxide tension was elevated in three of five patients during intoxication, the mean in the five patients being 47 mm. Hg during intoxication and 39 mm. Hg following recovery. The majority of patients showed a reduction in cerebral respiratory quotient during intoxication as compared with the value following recovery.

COMMENT

This study shows that low concentrations of alcohol in the blood, 15 to 137 mg. per 100 cc., do not produce significant changes in either cerebral blood flow or oxygen consumption, as measured by the nitrous oxide method. In measuring changes in cerebral blood flow, the possibility of excessive contamination of internal jugular blood with venous blood from extracerebral sources must be considered, since this would affect the validity of the determinations. At the level of the jugular bulb this contamination ordinarily is slight. Space does not permit a complete analysis of this problem in relation to the accuracy of the nitrous oxide method during alcoholic intoxication. Under ordinary conditions, a considerable contamination will result in a falsely low value for cerebral blood flow. If the extracranial vessels are consider-

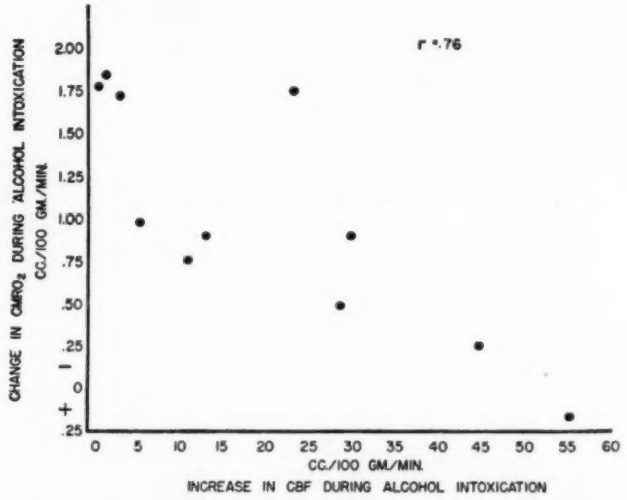

Fig. 3.—Relation between the increase in cerebral blood flow (CBF) and the change in cerebral oxygen consumption ($CMRO_2$) during alcoholic intoxication.

ably dilated the cerebral blood flow may be falsely high. We do not believe that any important error was introduced in these measurements by increased addition of extracerebral venous blood to internal jugular blood. Studies of the nitrous oxide concentrations in external and internal jugular blood in two patients given intravenous alcohol suggested that there was only mild dilatation of extracerebral vessels. Furthermore, the shape of the arterial and internal jugular venous nitrous oxide concentration curves in both groups of patients did not suggest excessive contamination.

Alteration in cerebral blood flow might have been expected with the low concentrations of alcohol induced, in view of the fact that such levels are usually associated with evidence of extracranial and facial vasodilatation. The lack of any alteration in cerebral metabolism in the presence of the mental changes of mild intoxication might appear surprising. It is possible, however, that the mental changes observed with low blood levels of alcohol are due to depression of specialized areas or synaptic systems of the brain that do not participate greatly in the overall

oxygen consumption of this organ but that are, nevertheless, important in emotional control and personality integration. Some similar circumstances apparently obtain in patients given seminarcotic amounts of barbiturates, which, although producing definite mental changes, are not associated with alterations in either cerebral blood flow or metabolism.[13] The absence of significant changes in the arterial-internal jugular venous oxygen difference in patients receiving as much as 80 cc. of alcohol intravenously has been noted also by others.[18]

Since these studies indicate that alcohol in the intravenous doses employed has little effect on cerebral blood flow, from the standpoint of modifying this function, it would not be expected to be of value in the treatment of patients with "strokes" or cerebral vascular disease. Although higher levels of alcohol in the blood were found to produce an increase in cerebral blood flow, such levels are associated with depression of cerebral oxygen uptake, and ingestion of about 100 cc. of alcohol or 200 cc. of whisky would be required to produce them.

The depressant effect of large doses of alcohol on the brain in patients with severe alcoholic intoxication has been observed in a variety of psychological and psychomotor studies.[14] Electroencephalographic studies during alcoholic intoxication have shown changes similar to those observed during hypoxic states.[15] The poor correlation observed in the present studies between the blood alcohol level and the degree of reduction in cerebral oxygen uptake may have been due to the fact that the level of alcohol in the blood was not always the same as that in the nerve cell itself; however, this seems doubtful in view of the rapid distribution of alcohol throughout the body water.[14] It seems more likely that the failure of correlation was due to individual differences in tolerance, possibly as a result of chronic addiction to alcohol.

As mentioned previously, the patients with the greatest increase in cerebral blood flow during intoxication tended to have the least degree of reduction in cerebral metabolism. Since blood flow is normally adjusted to tissue needs, a depression of cerebral metabolism by alcohol would be expected to be followed by a reduction in blood flow if other factors were not operative. It appears possible that an increase in blood flow during intoxication, by raising oxygen tension in the capillaries and in the extravascular fluid of the brain, counteracted to some extent the depressant effects of alcohol on cerebral metabolism. During alcoholic intoxication, the mean venous oxygen tension was actually 13 mm. Hg greater than that following recovery. There was some tendency for the patients with the greatest increase in jugular venous oxygen tension during intoxication to have the least reduction in cerebral oxygen uptake. This might provide a rational basis for the use of 100% oxygen in the treatment of acute alcoholic intoxication, as suggested by other workers.[16] This concentration of oxygen acts, however, as a cerebral vasoconstrictor, and this would, to some extent, offset the advantage of an increase in oxygen content of the arterial blood.

The increased cerebral blood flow found in association with high levels of alcohol is consistent with the observations of Thomas,[17] who noted dilatation of the pial vessels in experimental animals given intravenous or intracarotid injections of ethyl alcohol. The increase in blood flow in these animals was, however, transient and had completely subsided in 15 to 30 minutes, despite the continued presence of elevated blood alcohol levels.

Other factors that may have been important in producing the increased cerebral blood flow were the increase in carbon dioxide tension and the pH changes observed in several of these patients. A decrease in pH was found in five of the six patients in whom this determination was made. Acidosis has also been reported by others and is thought to be caused by accumulation of lactic acid and retension of carbon dioxide.[18] Reduction in pH is commonly believed to cause an increase in cerebral blood flow, but recent studies in our laboratory [19] and by Schieve and Wilson [20] have shown that cerebral vessels dilate more consistently with elevations of carbon dioxide tension than with depression of pH. The mean increase of 8 mm. Hg in carbon dioxide tension observed in our patients is ordinarily sufficient to produce considerable dilatation of cerebral vessels. A reduction in pulmonary ventilation was noted in two of the three patients in whom this function was measured, and this factor may have produced the observed elevation in carbon dioxide tension.

It would appear from these observations that the profound narcosis produced by high concentrations of alcohol in the blood can be accounted for by depression of cerebral metabolism. It is possible, of course, that a number of other factors, such as an acidosis, dehydration, and hypoglycemia, may also be operative in some of these patients. Our studies do not provide any information about the exact mechanism of the depression of the central nervous system in alcoholic intoxication, except to indicate that impairment of the cerebral circulation is not a major factor. Despite the fact that the cerebral metabolism of these patients readily returned to normal after they became sober, it is possible that repeated depression of the brain by alcohol may result in permanent cerebral injury and degeneration.

SUMMARY

The cerebral blood flow, cerebral metabolism, and cerebral vascular resistance were measured in 15 subjects before and during intravenous administration of ethyl alcohol and in 12 patients during and after severe self-induced alcoholic intoxication. The administration of ethyl alcohol in doses sufficient to produce facial vasodilatation and the mental changes of mild inebriation produced no changes in cerebral blood flow, cerebral metabolism, or cerebral vascular resistance. During acute

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severe alcoholic intoxication, there was a pronounced increase in mean cerebral blood flow, an equally significant reduction in cerebral oxygen uptake, and a reduction in cerebral vascular resistance, as compared with the values obtained following recovery. Low concentrations of alcohol in the blood (averaging 68 mg. per 100 cc.) had little or no measurable effect on cerebral circulation, while high levels (averaging 320 mg. per 100 cc.) produced a pronounced depression in cerebral oxygen consumption, despite an increase in blood flow. There appears to be no rational basis for the use of ethyl alcohol as a vasodilator in patients with cerebral vascular disease.

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TREATMENT OF BETA HEMOLYTIC STREPTOCOCCIC INFECTIONS IN THE HOME

RELATIVE VALUE OF AVAILABLE METHODS

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The results of a five year study of various plans of treatment used to control beta hemolytic streptococcic infections in a large group of children seen in private practice are reported in this paper. These illnesses are important because they are commonplace and potentially serious if not properly treated. Since the convincing studies of Wannamaker and his associates [1] showing that adequate treatment of primary streptococcic infections will, in most cases, prevent the occurrence of rheumatic fever, an evaluation of treatment methods is of importance not only from the standpoint of the acute infection itself but also from that of preventing rheumatic fever.

MATERIAL AND METHODS

In the five year period from Aug. 1, 1947, to Aug. 1, 1952, 792 children between the ages of 2 months and 18 years with 1,204 proved streptococcic infections were observed. All were private patients treated by me and my associate, Dr. F. A. Disney. The distribution of cases was equal between the two sexes, but the first attacks showed a pronounced tendency to occur in children of ages 5, 6, and 7 years. Forty-eight per cent of the infections occurred in children of this age group; 25% occurred in children under 5 and 27% in children over 7. Less than 2% of the cases were observed in infants under 2 years of age. During the period of the study, the months of January through June accounted for 83% of the cases, April and May being the months with the highest attack rates. August had the lowest rate, followed by September and October. This general pattern, with some variation, occurred throughout the study.

Diagnosis.—The clinical diagnoses are shown in table 1. These diagnoses were based on the major presenting signs and symptoms. All patients were examined by me or my associate in the home or office, and, when first seen, throat cultures were obtained. The diagnosis of a streptococcic infection was considered established if the patient had signs and symptoms consistent with those of a streptococcic infection and if the culture (usually of the throat) was positive for beta hemolytic streptococci. Generally speaking, such cultures were strongly positive.

Follow-Up.—After treatment was completed, the patients were examined in the office. At such times, an interval history was obtained. In addition, the results of one or all of the following laboratory examinations were ascertained: (1) throat culture, (2) erythrocyte sedimentation rate, (3) antistreptolysin O titer, (4) antihyaluronidase titer, and (5) urinalysis. In almost all cases, the results of throat culture, sedimentation rate determination, and urinalysis were obtained. Antistreptolysin O titer and antihyaluronidase titer determinations were made less frequently. Most patients were followed for at least three weeks, until they seemed clinically well, the cultures were negative, and the sedimentation rate was normal. Although not all patients were observed at the end of a three week period, the vast majority remained as our private patients and would have reported further symptoms. Many were seen subsequently with other illnesses and for routine examinations.

Laboratory Tests.—For culture material, the patients' pharynges and tonsillar areas were swabbed with a sterile cotton swab. In the office, the swabs were streaked directly on blood agar plates. In the home, the swab was placed in a stoppered test tube containing sufficient infusion broth to keep the swab moist. On return to the office, these swabs were streaked on blood agar plates. Repeated checks showed that hemolytic streptococci on such swabs remained viable for at least 24 hours. The plates were incubated overnight. Hemolytic colonies suspected of being streptococci were picked and Gram-stained. Plates containing such organisms were taken to the Rochester Rheumatic Fever Laboratory or, more recently, to Dr. Ralph Jacox's laboratory, where the strains were isolated in pure culture and lyophilized. Many of these strains were grouped and typed subsequently by the method of Swift, Wilson, and Lancefield.[2]

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The major portion of the "bicillin" used in this study was supplied by Wyeth, Inc., Philadelphia.

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Because of space limitations, tables 2 and 6 and all of the bibliographic references have been omitted from THE JOURNAL and will appear in the author's reprints.

Grouping and typings of the strains were done in the Rochester Rheumatic Fever Laboratory by Dr. Grove Wiley; in the Communicable Disease Center of the United States Public Health Service, Chamblee, Ga., under the direction of Helen Updyke; and in the Streptococcal Disease Laboratory, F. E. Warren Air Force Base, under the direction of Dr. Chandler A. Stetson. Dr. A. T. Harris did the antihyaluronidase titrations on a number of the serum samples.

The micromethod of Landau [3] was used in sedimentation rate determinations; by this method, rates above 15 mm. per hour are considered abnormal. The method of Rantz and Randall [4] for titrating antistreptolysin was used. For producing and standardizing streptolysin, Massell's revision of the method of Todd [5] and Hodge and Swift [6] was utilized. An increase in titer of two or more tubes was considered significant. The mucin clot method of Jablon [7] slightly modified by Jacox [8] was used for determining antihyaluronidase titers; by this method, a rise of 40 or more units was considered significant. Urine specimens were checked at the end of the third week for albumin and abnormal cellular constituents in the sediment.

TREATMENT SCHEDULES

A variety of treatment schedules was used. The major types of treatment were as follows: (1) symptomatic, (2) use of the sulfonamides, (3) use of aureomycin, and (4) use of penicillin. Symptomatic treatment generally consisted of use of acetylsalicylic acid or gargles and was usually used in patients with mild cases. Of the sulfonamides, sulfadiazine or a triple sulfonamide or, more recently, sulfadimetine (elkosin®) or sulfisoxazole (gantrisin®) was generally used. The course was given for five to eight days, with considerable variation in the duration of treatment. The usual dose was 1 grain (0.06 gm.) per pound (0.45 kg.) of body weight, except with sulfadimetine or sulfisoxazole, of which less was given. Sulfonamides were used oftenest in patients with mild cases, those seen relatively late, and those with cervical adenitis. A detailed study of the use of aureomycin in beta hemolytic streptococcic infection has been published elsewhere.[9] The usual dose was 10 mg. per pound of body weight given daily for two days and then half that amount for a total of 8 to 12 days.

The great majority of patients were treated with penicillin in various dose schedules. Both the parenteral and oral routes were used. With the exception of a few patients treated with penicillin G in beeswax in the early days of the study (through 1948), the injection material used was procaine penicillin G suspended in oil, with 2% aluminum monostearate added. It was given in single doses of 300,000 units, regardless of the size or age of the patient. Penicillin for oral use consisted of tablets of potassium penicillin, generally 100,000 units each. (In infants and occasionally in older children during the earlier days of the study, 50,000 unit tablets were utilized.) In 1952, the use of "bicillin" (N,N[1] dibenzylethylenediamine dipenicillin G) both orally and by injection was begun. These various forms of penicillin were given in the following schedules:

By injection alone, procaine penicillin G was given in (1) one dose of 300,000 units (115 cases), (2) two doses of 300,000 units each, three days apart, (131 cases), and (3) three doses of 300,000 units each, three days apart, (206 cases); and "bicillin" in aqueous suspension was given in doses of (1) 600,000 units in one injection (71 cases) and (2) 1 million units in one injection (37 cases). (In the report of results, results from the use of "bicillin" in both doses are combined.)

By oral administration alone, potassium penicillin G was given in tablet form (a liquid form was used rarely), as follows (45 cases): 24 to 36 tablets of 50,000 to 100,000 units (total of 1,200,000 to 3,600,000 units) at least one hour before and two hours after a meal over a period of 8 to 10 days; infants and younger children received a smaller dose and older children a larger dose. By oral administration alone, "bicillin" was given as follows: 60 cc. of a liquid form containing 300,000 units per each 5 cc., in doses of ¼ teaspoonful four times daily or ½ teaspoonful three times daily for a total of 3,600,000 units (11 cases); or in tablets of 200,000 units each in a dose of one tablet two times daily for 10 days for a total of 4 million units (33 cases). (Results of all methods of oral administration are combined in the report of results.)

By the parenteral and oral routes combined, penicillin was given as follows: 300,000 units of procaine penicillin G given parenterally, followed after an interval of three days by oral administration of (1) 24 tablets of potassium penicillin G containing 100,000 units each for a total oral dose of 2,400,000 units (82 cases), or (2) 60 cc. of "bicillin" in liquid form for a total oral dose of 3,600,000 units (87 cases). (Results from the use of potassium penicillin G and "bicillin" in the combined administration method are combined in the report of results.)

RESULTS

The groups and types of streptococci found in 581 separate infections are shown in table 2. Types 1, 3, 4, 5, 6, 12, 13, 14, 18, 28, and 42 were found more than once. Types 1 and 12 were the only strains isolated in all five years of the study. The latter was the commonest type. Two hundred ten (36%) of the strains were of group A but could not be typed with the available serums.

TABLE 1.—*Clinical Diagnoses of Streptococcic Infections Observed*

Infection	No. of Cases	%
Streptococcus sore throat	881	73.2
Scarlet fever	145	12.0
Carrier *	61	5.1
Sinusitis, otitis media	52	4.2
Cervical adenitis	38	3.2
Cellulitis, impetigo	8	.7
Vaginitis	8	.7
Unknown	11	.9
Totals	1,204	100

* Carrier: A person with a persistent or recurrent positive throat culture in the absence of clinical disease.

The following criteria were used in judging the results of treatment: (1) the immediate clinical response, (2) the frequency with which a treatment schedule was followed by recurrence of the disease or a complication, (3) the frequency with which throat cultures remained negative, (4) the results of sedimentation rate determinations in the follow-up period, (5) the antibody response as judged by antistreptolysin O or antihyaluronidase titers, and (6) the frequency of occurrence of late nonsuppurative complications, i. e., rheumatic fever or nephritis. Since there seemed to be little difference in the results of treatment, the results of some of the subdivisions of various treatment schedules were combined, as indicated in the section on methods.

Immediate Clinical Response.—As far as could be judged, the immediate response to treatment with aureomycin or penicillin was uniformly rapid and usually dramatic. Within 24 hours after treatment, the temperature had subsided, the patient felt and acted better

and, in most cases, wanted to resume full activity. The schedule of treatment seemed to have little bearing on this result. It was an almost universal experience that with penicillin or aureomycin therapy apparent recovery by the next day was the rule. In the face of suppurative complications, this response was delayed. With the sulfonamides this result was not as dramatic. Recovery seemed slower, fatigue commoner, and the "bound back" to good health much less obvious than that following use of the antibiotics. In this regard, the response was similar to that seen in patients treated symptomatically.

likely the second attack is to be a recurrence rather than a reinfection.

Although there was relatively little difference in the initial response as the result of the use of different treatment schedules, with the antibiotics there were pronounced differences in recurrence rates obtained with the various treatment schedules. In general, the use of aureomycin was more likely to result in recurrences than the use of penicillin, and the longer adequate penicillin blood levels were maintained the less likely were recurrences. Thus, in table 3, a single injection of "bicillin" is shown to give the best results. There were no recur-

TABLE 3.—*Relation of Type of Therapy to Clinical Recurrences* Within Two Months of Onset of Disease*

Type of Therapy	Total No. of Patients	Patients Followed †		Patients with Recurrence in 1 to 14 Days		Patients with Recurrence in 1 to 31 Days		Patients with Recurrence in 1 to 61 Days	
		No.	%	No.	%	No.	%	No.	%
Aureomycin	87	68	78	6	9	17	25	20	29
Penicillin (1 intramuscular injection)	115	69	60	14	20	22	32	27	39
Penicillin (2 intramuscular injections)	131	99	76	9	9	17	17	19	19
Penicillin (3 intramuscular injections)	206	124	61	4 ‡	3	10	8	21	17
Penicillin (combined intramuscular and oral administration)	169	141	83	6	4	20	14	25	18
Penicillin (oral administration)	89	72	81	8	11	12	17	14	19
"Bicillin"	108	81	75	0	0	4	5	9	11
Sulfonamides	101	72	70	12	15	15	21	17	23
Symptomatic	52	33	63	5	15	5	15	5	15

* "Clinical recurrence" included presence of positive cultures for hemolytic streptococci.
† To be classified as "followed," patients had to be seen at least twice, have had at least two cultures done, and have been observed for a minimum of 10 days; in the majority of patients, the period of observation was three weeks or longer.
‡ Recurrence in one patient occurred on the third day after receiving a single dose of penicillin.

TABLE 4.—*Relation of Type of Therapy to Bacteriological Recurrence Within Two Months of Onset of Disease*

Type of Therapy	Total No. of Patients	Patients Followed		Patients with Recurrence in 1 to 14 Days		Patients with Recurrence in 1 to 31 Days		Patients with Recurrence in 1 to 61 Days	
		No.	%	No.	%	No.	%	No.	%
Aureomycin	87	68	78	7	10	18	26	24	35
Penicillin (1 intramuscular injection)	115	69	60	18	26	28	41	35	51
Penicillin (2 intramuscular injections)	131	99	76	12 †	12	25	25	29	29
Penicillin (3 intramuscular injections)	206	124	61	9 ‡	7	21	17	32	26
Penicillin (combined parenteral and oral administration)	169	141	83	16	11	26	18	34	24
Penicillin (oral administration)	89	72	81	11	15	18	25	20	28
"Bicillin"	108	81	75	1	1	6	7	11	14
Sulfonamides	101	72	70	43	60	49	68	52	72
Symptomatic	52	33	63	17	52	24	73	26	79

* To be classified as "followed," patients had to be seen at least twice, have had at least two cultures done, and have been observed for a minimum of 10 days; in the majority of patients, the period of observation was three weeks or longer.
† Positive cultures occurred in two patients on the third and fourth days, respectively, after receiving a single dose of penicillin.
‡ Positive cultures occurred in four patients after having received two doses of penicillin.

Recurrence and Suppurative Complications.—In this study no attempt was made to differentiate between recurrences with the same type and reinfections with a different type of Streptococcus; however, since all groups were judged by the same criteria, my associate and I feel that differences in "recurrence" rates were valid. The patient was considered to have had a recurrence or complication if he again became clinically ill and at the same time had a positive throat culture for hemolytic streptococci. What typing data we have indicate that the sooner after the initial infection a second positive culture is found, the more likely the second culture is to be of the same type as the first, and therefore, the more

rences in the first two weeks and in only 5% in one month. Three doses of procaine penicillin in oil with aluminum monostearate gave almost as good results, and, if the percentage of follow-up had been higher in this group, it is reasonably certain that the results would prove to be even better than they appear. Several of the other dose schedules in which adequate blood levels were maintained for at least a week gave reasonably good results. It is pertinent, however, to note that a single injection of repository penicillin (other than "bicillin") is inadequate in treatment of streptococcic infection, since the recurrence rate is exceedingly high. Although not included in our series, this is even truer of

penicillin products giving adequate blood levels of penicillin for shorter periods.

The relatively low recurrence rate for patients treated symptomatically or with sulfonamides shown in table 3 deserves special comment. This rate is more apparent than real. These patients had in general, milder cases than those treated with the antibiotics. In addition, as noted above, they rarely showed the dramatic response shown by those treated with penicillin or aureomycin. There was no distinct line between being well and being sick; the patients got well by lysis rather than by crisis. It was difficult, therefore, to say when they had a recurrence rather than a continuation of the primary illness, especially since the throat cultures tended to remain positive throughout the entire period of observation.

Continued Positive or Recurrent Positive Cultures.—When one includes patients who continue to carry or who have a recurrence of streptococci in the throat, regardless of whether they are clinically ill (table 4), it becomes apparent that "bicillin" injection therapy still seems to hold the edge, with the sulfonamides and symptomatic treatment being least effective. It is also clear that a single dose of procaine penicillin in oil is inadequate. Although not apparent in the data in table 4, it was exceedingly rare to find a positive throat culture in a patient the day after he had received penicillin or aureomycin.

Erythrocyte Sedimentation Rates.—Regardless of the type of treatment, an appreciable number of children will show abnormal erythrocyte sedimentation rates for some weeks following a streptococcic infection. Although such increased rates may be warnings of impending trouble, they seemed, in the majority of children, to be of little clinical significance and were rarely followed by important sequelae. On the other hand, a low or normal sedimentation rate gave no assurance that clinical recurrences would not occur. It was not rare for a patient to have a normal sedimentation rate and several days later to have a recurrence. Nonetheless, my associate and I attempted to keep all patients under observation until their sedimentation rates were normal. In relation to treatment, patients treated with aureomycin and penicillin were less likely to have elevated sedimentation rates two weeks or longer after initiation of treatment than those treated either symptomatically or with the sulfonamides (table 5). No difference between those treated with sulfonamides and those treated symptomatically was apparent. Within the group treated with penicillin, "bicillin" administered parenterally left the smallest number of patients with elevated sedimentation rates two weeks or longer after the beginning of treatment (table 5). This difference is, however, small and not statistically significant.

Antibody Response.—Studies of antibody response were carried out on only a small proportion of the total number of patients. The antihyaluronidase titers showed in the majority of patients little or no change, and, consequently, no comparison between treatment schedules could be made. On the other hand, the antistreptolysin O titers showed that the antibody response was significantly higher in patients treated with sulfonamides than in those treated with penicillin or aureomycin (table 6). No antibody studies were done on the patients who received "bicillin."

Nonsuppurative Complications.—In the entire series, to our knowledge, only one case of unquestioned rheumatic fever developed. It occurred in a 12-year-old boy 27 days after he had received sulfonamides for treatment of an infection caused by group A, type 6 Streptococcus. In five children acute glomerular nephritis developed. In four of the five, a suppurative complication of a streptococcic infection was present. In the fifth it is likely, although unproved, that a reinfection by a Streptococcus occurred 10 days before the nephritis and two months after the initial infection. One child received no therapy, one received sulfonamides, and three received penicillin. In at least one case, the penicillin was given early and in adequate dosage.

COMMENT

By the end of World War II it was becoming clear that penicillin was the drug of choice in the treatment of streptococcic infections and that, to cure the disease without relapses and to eliminate streptococci from the throat, treatment had to be prolonged. It was also becoming apparent that penicillin given orally in adequate amounts over a sufficiently long period would give good results in these infections.[10] To these early clinical studies, Eagle and his associates [11] have added their well-documented laboratory studies showing the importance of the duration of therapy. They state, "The rate at which bacteria die under the impact of penicillin in vivo is independent of its absolute concentration, provided only that the latter is in excess of the level which in vivo kills the particular organism at the maximum rate. Large doses of penicillin are more effective than smaller doses, primarily because of the longer time during which they provide that effective concentration."

Even though these facts were known, adequate home therapy of streptococcic infections was impractical because of the number of injections needed of the penicillin products available at that time and the extremely high cost of adequate amounts of penicillin for oral administration. The sulfonamides were in wide use, despite their inability to alter the course or frequency of most initial streptococcic infections or to eliminate the Streptococcus from the throat. With the advent of penicillin in beeswax and oil and a considerable decrease in the cost of penicillin for oral administration, it appeared that home therapy might be made as satisfactory as that available

TABLE 5.—*Erythrocyte Sedimentation Rates Two Weeks or Longer After Onset of Streptococcic Infection*

Type of Therapy	No. of Cases	No. in Which S.R.* Exceeded 15 Mm./Hr.	% in Which S.R. Exceeded 15 Mm./Hr.
Aureomycin	48	27	26.6
Penicillin (1 intramuscular injection)	48	33	
Penicillin (2 intramuscular injections)	117	27	
Penicillin (3 intramuscular injections)	109	35	
Penicillin (combined intramuscular and oral administration)	102	40	31.8
Penicillin (oral administration)	43	28	
"Bicillin" (1 injection)	62	23	
Sulfonamides	97	40	40.1
Symptomatic	40	40	40.0

* S. R. = sedimentation rate.

in the hospitals. It was at this period that this study was begun.

Since then, better penicillin products have been developed, and it has been shown that the treatment of streptococcic infections by adequate amounts of penicillin will prevent rheumatic fever.[12] It is imperative, therefore, that physicians learn to recognize and treat adequately these infections in the home. Dr. Disney and I have attempted to evolve a method that can be used almost universally in the home. Such a method should (1) cure the disease quickly, (2) eliminate streptococci from the throat, (3) have a low bacteriological and clinical recurrence rate, (4) prevent complications, either early suppurative ones or late nonsuppurative ones, such as rheumatic fever and nephritis, (5) be simple to administer, (6) be relatively inexpensive, (7) be acceptable to the patient, and (8) have a low reaction rate. On the basis of our experience, we feel that "bicillin" for injection more nearly supplies the need than any other product available at present. A single intramuscular dose of 600,000 units in children is reported to give effective blood levels for as long as two weeks.[13] I have had no experience with the assay of such levels, but the clinical experience as outlined in this study would indicate that this may be so. Certainly the results seem equal to those obtained by any other method. This experience is, however, inadequate for judging whether this product can prevent rheumatic fever or nephritis. Although at times oral medication may be used, at present I prefer the use of penicillin for injection. Difficulty of administration, owing to vomiting or refractoriness in children, is eliminated. No problem of continuing medication for a prolonged period is encountered, and cost is reduced. The chief objection at present to the injection method is the local reaction that occurs in the majority of children within 12 hours after injection. Pain and tenderness of moderate degree is complained of for one or two days. With doses of 1,000,000 to 1,200,000 units, the local reactions are generally severe, frequently with swelling and considerable pain at the site of injection. I suspect that on occasion these larger doses in small children may be associated with some febrile reaction.

As far as my associate and I have been able to determine, we have had only one unquestioned case of rheumatic fever in the series. Most investigators have reported an attack rate of about 3% in children who have had untreated streptococcic infections.[14] Our low rate may be the result of any one or a combination of the following factors: 1. It may be due to missed cases; although my associate and I may miss some cases of mild rheumatic fever, I feel that our "follow-up" is reasonably good and that, since we are the children's pediatricians, illness would be reported to us. 2. The attack rate in cases of the type reported here is much lower than 3%; I suspect that this may play a part. Because they are not reported to us, we do not treat all the streptococcic infections in our patients, and the occurrence of rheumatic fever in these children has been rare. 3. Treatment probably has reduced the incidence of rheumatic fever. Since we have had no adequate controls, we are unable to ascertain just how great a part this plays. We have, however, shown that in the vast majority of patients, penicillin therapy has been effective in curing the acute illness, eliminating the carrier state, and reducing the antibody response (usually high in rheumatic fever) and has had some favorable effect on the sedimentation rate. With this in mind, and despite the first two factors mentioned, it would seem that therapy must have reduced the incidence of rheumatic fever, since the attack rate in this series was less than 0.1%.

What influence therapy has on nephritis, we are not prepared to say. We have had a large number of infections caused by type 12 Streptococcus, which is reported by Rammelkamp [15] to be the major bacteriological agent in nephritis. We examined the urine in most patients in the follow-up period and found only five cases. In only one of these would we consider that adequate therapy had been utilized. In the others, medication, when used, was given late. It is possible, and we think probable, that early adequate treatment may prevent nephritis, but we have inadequate data to support this opinion.

SUMMARY

The results of different treatment schedules in 1,204 beta hemolytic streptococcic infections in 792 children seen in pediatric practice are reported. Penicillin is the drug of choice but must be used so that adequate blood levels are maintained for a week or longer. If so used, in the majority of patients it will cure the disease, clear the throat of streptococci, and prevent recurrences. A new form of repository penicillin, "bicillin" (N,N^1 dibenzylethylenediamine dipenicillin G) in aqueous suspension, seemed to accomplish these results in the home most satisfactorily. In the entire series, the incidence of complicating rheumatic fever or acute glomerular nephritis was exceptionally low.

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Repeated Cesarean Section.—The old adage "once a cesarean always a cesarean" has been subjected to some criticism recently by several authors who have reported sizable groups of patients who have been delivered from below in subsequent deliveries. These clinicians have advocated the individualization of patients, subjecting many to trial labor if the primary indication was not gross cephalopelvic disproportion. These statistics are not large enough to warrant any change in our thinking.

Rupture of the uterine scar during late pregnancy or labor is the real danger and there is no way in which the adequacy of the scar can be tested prior to the onset of labor. The uterine scar regardless of its location invariably heals by connective tissue replacement. The method of suture does not determine the thickness or the quality of the scar. It is true that the scar in the lower segment is much less likely to rupture than one in the corpus. Furthermore, the lower segment scar may part completely during the late weeks of pregnancy and yet the baby will remain in the uterine cavity. Such gross defects in scars have been repeatedly visualized at repeat cesarean section where the presenting part can be seen just beneath the bladder flap. Rupture of the uterus, although rare following laparotrachelotomy, is a real threat and it is followed by death of the fetus and an appreciable maternal mortality from hemorrhage. The hazards of possible rupture and serious sequelae are greater than the mortality of elective repeat cesareans which can be kept as low as 0.1 or 0.2%. Thus, not until many thousands of deliveries following previous cesareans are available for study will any change in our present attitude toward repeat cesarean section be justified.—M. E. Davis, M.D., The Modern Role of Cesarean Section, *The Surgical Clinics of North America,* February, 1953.

EVALUATION OF HEPATIC TESTS AND CLINICAL FINDINGS IN PRIMARY HEPATIC CANCER

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The importance of primary hepatic cancer has been stressed in recent reports in the literature. At the United States Public Health Service Hospital, Staten Island, N. Y., we have had the opportunity to study 19 proved cases of primary hepatic carcinoma, with special emphasis on the detailed analysis of hepatic tests as well as the pertinent clinical features. It is well known that primary hepatic cancer is a rare disease in European and North American populations. In Europe, this entity is seen in 0.13% of all autopsies and comprises 1.1% of all carcinomas, and in America, it is seen in 0.25% of all autopsies and comprises 2.1% of all carcinomas, while in the Orient it is seen in 0.85% of all autopsies and comprises 14.1% of all carcinomas. The incidence of hepatic cancer at this institution is unusually high in comparison to that for Europe and North America. This disease has been seen in 1.06% of all autopsies and comprises 3.45% of all malignant lesions seen at this hospital since 1938. Eighteen of the 19 cases studied were confirmed at post mortem examination and one by needle biopsy of the liver. Sixteen were of the "liver cell" type (hepatoma) and three were of the "bile duct" type (cholangioma). We have included both in our series, as has been the custom of others who have reported this disease.

It has been thought that hepatic carcinoma in America usually occurs in Oriental persons or Negroes.[1] In our series of 19 patients, 3 were Filipino, and 1 was Chinese, and the remainder were white, many of Nordic ancestry. This would seem to indicate, at least in our group, that racial susceptibility is not a great factor. The average age in our group was 53.7 years, the oldest patient being 71 and the youngest 43. This agrees with the general age incidence of malignant disease. It is to be noted, however, that primary liver carcinoma also occurs in children and infants.[2] All of our patients were men, which is a reflection of the fact that the population treated at this institution is predominantly male. In the general population, two-thirds of the cases occur in men and one-third in women.

Causative factors that have been implicated by other observers include the following ones: (1) the presence of embryonic rests [3]; (2) chronic irritation, such as that seen in parasitic infestation of the liver (Clonorchis sinensis infestation in the Chinese,[4] schistosomiasis in the South African [5]); (3) dietary insufficiency, especially of the amino acids cystine and choline, and insufficiency of the vitamin B complex, especially riboflavin; it has been demonstrated that the feeding of rats on diets rich in these substances would protect the liver against development of tumors induced by feeding *p*-dimethylaminoazobenzene (butter yellow)[6]; (4) Laennec's cirrhosis on an alcoholic basis; it has been postulated that the rapid regeneration and repair that occurs in cirrhotic livers may lead to carcinomatous change.[7] The association of alcoholic excesses and poor dietary intake is obvious. Laennec's cirrhosis was found at post mortem examination in 10 of the 16 patients with liver cell carcinomas. Five of these admitted alcoholic excesses. Three other patients who admitted alcoholic excesses did not have cirrhosis at autopsy. Biliary cirrhosis was present in one of the three patients with bile duct carcinoma.

RESULTS

In an attempt to ascertain whether a diagnosis of primary liver carcinoma can be made ante mortem, we analyzed the most frequently seen clinical features and significant results of laboratory tests in our series of patients. The most important symptoms encountered were right upper quadrant pain, anorexia, and weight loss. The most frequently seen physical findings were ascites, jaundice, and hepatomegaly. In the presence of ascites, nodularity of the liver was difficult to determine. Where no ascites was present, discrete nodularity was usually observed. Tenderness of the liver was usually not present. Spider angiomas were present in six patients. Splenomegaly was noted in only three. Massive gastrointestinal hemorrhage occurred in six, and esophageal varices were present at autopsy in 10 patients, all of whom had hepatocellular carcinoma and 2 of whom had no concomitant cirrhosis. Febrile reactions occurred in 3 of the 19 patients, and these were associated with necrosis of the tumor and secondary infection. The following tabulation summarizes the clinical characteristics, showing their incidence in this group.

Abdominal pain (right upper quadrant)	15
Anorexia	12
Weight loss	13
Alcoholic excesses	8
Ascites	10
Edema	9
Jaundice	15
Hepatomegaly	15
Splenomegaly	3
Spider angiomas	6
Hemorrhage, massive	6
Esophageal varices	10
Fever	3

In the most recent cases, complete profiles of hepatic tests were obtained in serial fashion. (The results are summarized in the table). These tests were indicative of chronic hepatocellular damage, with features of active

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change. As is generally true of hepatic tests, they were not diagnostic of the cause of liver damage. We have observed similar results in cases of Laennec's cirrhosis alone. It is interesting to note that the cephalin flocculation and thymol turbidity tests were frequently positive early in the patient's course, pointing to active hepatocellular change. Of course this finding may also be seen in active cirrhotic disease. The albumin-globulin ratio was disturbed in only 5 of the 14 patients in whom it was studied, while the zinc sulfate flocculation and gamma globulin turbidity were more uniformly abnormal. In one-half of the patients with elevated zinc sulfate flocculation and gamma globulin turbidity the albumin-globulin ratio was normal. In general, in our cases of chronic hepatic disturbance we have found that the zinc sulfate and gamma globulin tests are more sensitive diagnostic indicators than reversal of the albumin-globulin ratio in the earlier stages of disease. The serum alkaline phosphatase level has been reported as often being elevated in liver carcinoma and has been considered to carry significant diagnostic import for liver malignant disease. In our group, this level was

Results of Hepatic Tests in 19 Patients with Hepatic Carcinoma

Test	Normal Range	No. of Patients Tested	No. with Abnormal Result	Range of Abnormal Results
Cephalin flocculation	0-2+	14	8	3-4+
Thymol turbidity	0-5 units	14	10	6-34 units
Cholesterol esters	150-250 mg. per 100 cc. = ⅔ of total cholesterol	13	3	Esters 40-60% of total
Sulfobromophthalein (bromsulphalein®) sodium retention	<5% at 45 min.	5	4	25-30%
Serum bilirubin level	0-0.8 mg. per per 100 cc.	18	14	1.8-15 mg. per 100 cc.
Albumin-globulin ratio	>1	15	6	<1
Prothrombin concentration in plasma	>75%	13	9	20-62%
Serum alkaline phosphatase level	Up to 5 B. U.	14	10	6-27 units
Urine urobilinogen level	0.15-0.3 mg. per 100 cc.	10	0	.....
Urine bile level	0	8	8	.....
Zinc sulfate flocculation	0-10 units	6	4	11-36 units
Gamma globulin turbidity	0-10 units	6	5	11-30 units

abnormal in 9 of the 13 patients in whom it was determined. The usual range was 8 to 14 Bodansky units. In one case (hepatocellular type), it was 27 Bodansky units. No significant differences were noted in this test between liver cell or bile duct carcinomas in our series. Since moderate elevation of the serum alkaline phosphatase level is seen in most of our cirrhotic patients with jaundice and active hepatocellular change, it cannot be relied on as being specifically diagnostic of liver malignant disease. Results of routine laboratory studies, such as the red blood cell count, white blood cell count, and urinalysis were usually within normal limits. A mild anemia was present in a few patients. Severe anemia was associated with gastrointestinal hemorrhage. In the presence of necrosis and secondary infection with febrile reaction, moderate to severe polymorphonuclear leukocytosis occurred.

The diagnosis of carcinoma of the liver was made ante mortem in 11 of our 19 patients. In four it was made on the basis of clinical findings alone, in five by biopsy of the liver at exploratory laparotomy, and in two by needle biopsy of the liver. The diagnosis was confirmed in 18 patients at autopsy. In one case diagnosed by needle biopsy the patient is still living.

The clinical combination of right upper quadrant abdominal pain, anorexia, weight loss, jaundice, ascites, and hepatomegaly should lead one to suspect this disease. It must be remembered, however, that similar symptoms are present in pure cirrhosis. Serial hepatic tests can serve to indicate hepatocellular damage, although, as already pointed out, they are not indicative of the cause of liver damage. Further clinical observation may serve to strengthen such a diagnosis. In most of our patients, as in most cases reported by others, there was a rapidly downhill hospital course. The average duration of life after the development of clinical symptoms was four months; the shortest was one-half month, and the longest was eight months. In most disease entities there are outstanding exceptions to the clinical rule. We have had under observation for two months a patient with hepatocellular carcinoma, demonstrated on histological section of needle biopsy material, who has nodular, nontender hepatomegaly and whose hepatic test results were abnormal, yet who remains almost entirely asymptomatic except for minimal anorexia.

When the clinical examination, laboratory studies, and hospital course arouse the suspicion of hepatic carcinoma, objective confirmation can be made by needle biopsy of the liver or exploratory laparotomy with biopsy under direct visualization. A negative result from needle biopsy does not exclude the possibility of carcinoma, since a portion of liver tissue, that is not involved by tumor may be aspirated. In the two cases in our series in which needle biopsy was done, a clear cut histological diagnosis of malignant disease was made.

SUMMARY

Nineteen cases of hepatic carcinoma proved histologically were analyzed both clinically and by detailed laboratory study. The major symptoms were right upper quadrant pain, anorexia, and weight loss. The most significant physical findings were ascites, jaundice and hepatomegaly. Hepatic tests were indicative of chronic and active hepatocellular damage but not of the cause of the damage. Diagnosis can be made clinically when symptoms, signs, results of laboratory tests, and hospital course are carefully evaluated.

ADDENDUM

Since preparation of this paper, the patient described who was still living died from massive gastrointestinal hemorrhage.

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USE AND ABUSE OF DIRECT LARYNGOSCOPY

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It is the purpose of this paper to call attention to the fact that direct laryngoscopy is both inadvisable and unnecessary in a majority of cases in which it is being used today. A plea is made to replace it with mirror laryngoscopy in these cases. A brief reference to the history of the examination of the larynx might be in order.

The lack of a method of viewing the interior of the throat was recognized long before Bozzini [1] described a candle-lighted reflector for illuminating the interior of the throat in 1807. It was Senn,[2] however, who about 20 years later first attempted to visualize the larynx by means of a small mirror introduced into the mouth. In 1829, Babington [3] reported his glottiscope, a piece of mirror set in wire and attached to a long handle. The reflector was placed against the soft palate, while the tongue was held down with a depressor. The epiglottis and part of the larynx were visible in the mirror. A few years later, Trousseau and Belloc [4] referred to a laryngeal speculum that consisted of two tubes, one of which carried light and the other a mirror. Unfortunately, very few patients could stand the presence of this cumbersome instrument, and it was abandoned. In 1840, Liston [5] mentioned the successful use of a mirror. In his textbook on surgery he stated: "A view of the parts may be sometimes obtained by means of a speculum; by such a glass as is used by dentists, on a long stalk, previously dipped in hot water, introduced with its reflecting surface downward and carried well back into the fauces." Many other attempts were fruitless. It remained, however, for Manuel Garcia,[6] a singing teacher in London, to demonstrate his own larynx by utilizing the sun. He held a looking glass in his left hand by which he reflected the sunlight into his open mouth. Then he introduced a dentist's mirror, previously warmed, into the back of his mouth, which enabled him to see the reflection of his larynx in the looking glass. This was in 1855. Two years later, without knowledge of Garcia's work, Türck [7] brought forth a laryngeal mirror of better shape than Garcia's. Great progress was made in the diagnosis and treatment of laryngeal disease as a result of the discovery of the mirror.

Kirstein [8] was the first to use the direct laryngoscope. In 1896 he published, in book form, his technique of direct laryngoscopy. It is interesting to note that he called the procedure autoscopy of the air passages. Because he used proximal illumination, he was able to see the trachea and the main bronchial orifices, in addition to the larynx. Kirstein's instrument, like all direct laryngoscopes that have followed, was a speculum. He mentioned certain annoyances and inconveniences, which were principally the expense of equipment, the trouble of acquiring technique, and the necessity for special illumination depending on electricity. Kirstein found that the anterior commissure could be visualized in only 1 out of 10 cases. Of interest is his statement, "That there may be certain disadvantages, however, to the patient cannot be denied." Certain phases of direct laryngoscopy will not be included in this paper because they do not have a bearing on the subject under discussion.

Except for examination and treatment of the larynx of infants and some young children, the necessity for direct laryngoscopy is not very great. It is my desire to show that mirror laryngoscopy should be the procedure of choice, especially in adults. Compare direct laryngoscopy, which requires an operating room, a team, an operator, a head holder, a special nurse, and occasionally a shoulder holder and a leg-and-thigh holder, with indirect laryngoscopy, which requires no special place, two chairs, a light, a head mirror, and a laryngeal mirror. Mirror laryngoscopy can be practiced at any time, anywhere; it can be perfected with ease; this is not so with direct laryngoscopy. Mirror laryngoscopy is painless, effortless, not frightening, not alarming, never dangerous, and comfortable. There is difficulty only with the gagger or the apprehensive patient, and these are easily handled. Direct laryngoscopy is painful, in most cases, even with anesthesia. It is uncomfortable, alarming, and frightening, and can be dangerous. In a recent textbook, among the instructions given to patients before direct laryngoscopy, the author [9] states, "He must be gently but positively made to understand that while the procedure is alarming, it is absolutely free from danger." The average laryngologist performs direct laryngoscopy infrequently; it is therefore difficult or impossible for him to perfect his technique.

A well-known author [10] mentions the fact that the presence of the direct laryngoscope incites spasmodic laryngeal reflexes, and the traction exerted may somewhat distort the tissues, so that it is well preliminarily to obtain as good a view as possible in the mirror. On the same page the author states that "The recognition of the vocal cords depends almost wholly on form, position and movements." Since form, position, and movement are distorted and interfered with when the larynx is in spasm and on the stretch, direct laryngoscopy should not be the procedure of choice when the simpler, more accessible, easier to perform, painless, mirror laryngoscopy is available. In mirror laryngoscopy, form,

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position, and movement are not affected. For exposing the anterior commissure with the direct laryngoscope, the lifting motion and elevation of the head must be increased. If this does not suffice, an assistant must depress the thyroid cartilage with his fingers. Both of these procedures are not calculated to make the patient more comfortable or less apprehensive. If the laryngoscope is too long in place, accumulated saliva will trickle down the trachea and cause the patient to cough. Swallowing is almost impossible while the laryngoscope is in position. Therefore, suction removal of secretions is necessary. In mirror laryngoscopy these do not occur. It is practically impossible to visualize the postcricoid region with the direct laryngoscope. This area can be viewed readily with the mirror if the larynx is pulled forward after cocainization, by means of a curved instrument placed in the region of the anterior commissure.

One cannot overlook the fact that there are lesions that contraindicate the use of direct laryngoscopy because the patient's life would be endangered if he were placed in the recumbent position. I can recall a number of cases in which there were extremely large and partly obstructive lesions such as polyps or carcinoma, in which removal or biopsy was accomplished by indirect laryngoscopy. These cases could not have been done safely by direct laryngoscopy without a preliminary tracheotomy.

A great majority of the removable vocal cord lesions consists of small localized benign tumors. The simplicity of the removal of such neoplasms by means of the laryngeal mirror and suitable curved instruments cannot be denied. The technique involved is not as difficult as one would at first suppose. Every laryngologist who works in a clinic can perfect such manipulative technique. Why then do not more laryngologists resort to this procedure? Perhaps the answer is that relatively few laryngologists have been taught or even know that such a procedure exists. Another factor is the great emphasis that has been placed on direct laryngoscopy since it was first popularized by Chevalier Jackson.

Direct laryngoscopy is the only method by which the larynx of infants and many young children can be seen, but it should not be overlooked that one can examine the larynx of most young children if he takes the time to gain their confidence. With this many laryngologists are in agreement. Although direct laryngoscopy can be done without hurting the infant or young child if proper preliminary sedation is used and if the laryngologist uses his scope carefully, cautiously, and gently, it must be borne in mind that direct laryngoscopy in infants and children is not for the beginner or the inexperienced. The laryngeal tissues of the infant and young child are very easily stretched and distorted, so much so that at times the operator cannot get a clear view of the larynx.

It is the adult who suffers most during direct laryngoscopy. The mere fact that he is placed on a table with various means of restraint about him makes him apprehensive. While it is true that the operator should gain the confidence of the patient and give him a nice quiet talk on relaxation, it is also true that, unless the patient is completely anesthetized, the combination of recumbent position, holding of the head, and pinning down the shoulders, and at times the lower extremities, may frighten him. Certainly if these factors have not yet frightened him, the introduction of a heavy metal instrument will do so, especially if it is used with force and pressure, as is so often the case. Frequently, adults who undergo laryngoscopy are injured. All of us have seen broken dentures, loosened or avulsed teeth, and contusions or lacerations in the region of the ascending ramus of the mandible, the tonsillar pillars, the tongue base, the epiglottis or the pharyngeal walls, and last, but by no means least, the structures of the larynx. It is superfluous to mention that mirror examination, even in the hands of the novice and the unskilled, is a completely safe procedure. The only possible mishap in mirror laryngoscopy may be due to an overheated mirror. The simple routine of testing the heat of the mirror on the back of the hand will prevent this. Otherwise, it is impossible to hurt the patient with a laryngeal mirror.

I cannot agree with the oft-repeated statement that direct laryngoscopy gives the examiner a better view of the larynx. Most experienced laryngologists will not agree with this. In this respect, the following statement of Cunning [11] is significant: "It must be remembered that more is seen with the laryngeal mirror than with any type of laryngoscope." There is no part of the larynx that cannot be well visualized with the mirror. At times the anterior commissure cannot be seen because it is covered by an overhanging epiglottis. Cocainization of the epiglottis and pulling it forward with a curved instrument, under mirror guidance, always affords a perfect view of the anterior commissure. One can also visualize the ventricle and subglottic region by using a curved forceps to press the ventricular band laterally so as to afford a better view of the ventricle, or to press the vocal cord laterally to better see the subglottic region.

I feel that the overemphasis on direct laryngoscopy cannot be explained on the basis of the merits of each procedure. Perhaps the answer lies in the fact that there has been a lack of emphasis on the relative value of indirect laryngoscopy.

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11. Cunning, D. S.: Diagnosis and Treatment of Laryngeal Tumors, J. A. M. A. 142: 73 (Jan. 14) 1950.

Fluid Balance in Children.—There is a relatively greater daily obligatory water exchange in infants and children than in adults. The younger the patient the more important this fact is. Whereas a 70 kg. adult has an extracellular fluid volume of 14,000 cc. with a daily intake of 2,000 cc. and a daily output of 2,000 cc., a 7 kg. infant has an extracellular fluid volume of 1,400 cc. with an intake of 700 cc. and an output of 700 cc. It is readily seen that the infant exchanges about one-half of his extracellular fluid in a day's time, whereas the adult exchanges only about one seventh of his extracellular fluid. It is obvious then, that the child is more likely to experience body water and electrolyte deficits than the adult, and that these disturbances will appear more quickly. A disorder such as diarrhea might be of no consequence in the adult, and yet rapidly cause a near-moribund state in the little patient. The clinician should be well aware of this and not regard "a few loose stools" as insignificant.—F. S. Hill, M.D., Fluid Balance: Pediatric Aspects, *Memphis Medical Journal*, November, 1952.

AFFECTIONS OF THE FACIAL NERVE

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Although the prevention of injury to the facial nerve and the management of the facial paralysis that follows when the nerve has been injured are, undoubtedly, the most important and interesting aspects of any discussion concerned with the facial nerve, it would be incomplete if other conditions that may be encountered were not considered also. The literature pertaining to the management of traumatic facial paralysis is extensive and in unanimity. There are numerous publications to which one may refer for information relative to the treatment of such cases. On the other hand, the literature concerned with the management of other affections of the facial nerve is less extensive and less uniformly in agreement. To the best of my knowledge there is no single publication to which one might refer for information relative to the disorders of this nerve. This discussion, therefore, may be of interest if for no other reason than that it will call attention to the abnormalities to which the facial nerve may be subject.

The facial nerve is a mixed cranial nerve just as are the trigeminal, glossopharyngeal, and vagus, and, in common with these, it presents symptoms that are characteristic of the motor or sensory component involved. The motor component of the facial nerve is of greater importance, since the facial expression of a person is dependent on its integrity. Everyone is aware of the distress that a patient with unilateral paralysis of the face experiences, but it should also be realized that there are other affections of this nerve that may, on occasion, be even more distressing.

Considerable controversy exists as to the distribution of the sensory component of the facial nerve. This undoubtedly is the result of the numerous connections that exist between the facial, trigeminal, glossopharyngeal, and vagus nerves, as well as the overlapping of the sensory zones in and about the external ear. Despite disagreement as to the actual distribution of the sensory component, there can be little doubt from a clinical standpoint that a zone of cutaneous sensibility is furnished either directly by the facial nerve to a portion of the external auditory canal and the region of the concha of the external ear or indirectly through its communications with the trigeminal, glossopharyngeal, and vagus nerves. Maloney,[1] in 1911, claimed that the facial nerve also conveys deep pressure pain sensibility from the soft tissues of the face. My experience with facial paralysis convinces me of the validity of his observations. Not infrequently, patients who are recovering from facial paralysis volunteer information to the effect that their face feels less numb when performing acts that exert pressure on the face, such as shaving or applying lipstick, than it did before recovery had begun. Taste to the anterior two-thirds of the tongue as well as secretory fibers to the lacrimal, palatal, sublingual, and submaxillary glands complete the roster for the sensory component of the facial nerve.

DEVIATIONS OF FACIAL NERVE

Anomalies of the facial nerve with respect to its course through the temporal bone apparently are rarely encountered, for the otological and anatomic literature is almost barren of reported instances of such deviations. I see no reason, however, why deviations in the course of this nerve should not be expected. If anomalous development can occur elsewhere in the body, there is no logical reason to assume that the facial nerve should be exempt.

Barnhill [2] stated that Behrens found in cadaver material a facial nerve that "passed outward to the surface in such a position that, had the individual suffered from a mastoid abscess, injury would have been inflicted upon the nerve even in the hands of the best operator, since in this instance, it passed directly through a part of the field always used in making the surgical approach." Hawley,[3] in 300 dissections, found the vertical segment of the facial nerve displaced posteriorly 3 or 4 mm. from its usual plane in four instances. Kettel [4] reported seven instances in which this portion of the facial nerve pursued an abnormal course in 125 operations on the facial nerve. House [5] found the facial nerve coming over the top of the horizontal semicircular canal on two occasions, one in a cadaver and the other in a patient on whom he had intended to do a fenestration. Both Maxwell [6] and Kinney [7] encountered a single instance in which the facial nerve was misplaced in patients with congenital maldevelopment of the ears. I have one patient on whom I performed a radical mastoidectomy in which I found the facial nerve to be situated about 1 mm. more laterally than the most prominent point on the convexity of the osseous horizontal semicircular canal. In all other respects the development of the temporal bone of this patient apparently was normal.

It seems quite possible to me that minor deviations from the normal course of the facial nerve occur more frequently than a review of the literature would indicate. Only in relatively recent years have the training of the otological surgeon and the surgical technique necessary for adequate temporal bone surgery been augmented to the point that the operator now knows where the facial nerve normally should lie. Until then the surgeon approached the vicinity of the facial nerve with a great deal of trepidation and provocation and, as a result, was in no position to observe minor deviations of this nature.

SENSORY DISTURBANCES

Disturbances of the sensory portion of the facial nerve are not common and are manifested by pain in and about the ear. In their milder form they not infre-

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Some of the bibliographic references have been omitted from THE JOURNAL because of lack of space; however, they are included in the author's reprints.

1. Maloney, W. J.: The Sense of Pressure in the Face, Eye and Tongue, Brain **34**: 1-28, 1911.

3. Hawley, C. W.: Abnormalities of Mastoid with Especial Reference to Facial Nerve, Illinois M. J. **41**: 116-117, 1922.

quently cause the patient considerable distress because of the persistent, aching type of pain that wears a person down just as does a toothache. The pain in the severer type is intense and causes the patient to seek early relief by consultation with a physician. Pain of this nature may be localized deep within the ear without radiation to adjacent structures or in and about the ear with radiation to the face, pharynx, or tongue. The last distribution frequently is associated with herpetic lesions of the external ear and paralysis of the face and is commonly designated as Hunt's syndrome.

Herpes Zoster.—This syndrome of herpes zoster of the ear with facial palsy was intensively studied by James Ramsay Hunt [8] in 1907. It is a comparatively rare affection of the facial nerve of unknown cause, although the present day conception is that the disease is caused by a filtrable virus. Hunt considered the geniculate ganglion to be the site of the primary pathological process, but this conception recently has been challenged. Denny-Brown and his co-workers [9] studied histopathologically a case of auricular and occipital herpes zoster with facial palsy and found a typical necrotizing ganglionitis of the second cervical ganglion, a patchy motor neuritis of the facial nerve, and no changes in the geniculate ganglion. Tschiassny [10] reexamined the problem from the clinical point of view; he reviewed 22 cases of herpes zoster with facial paralysis reported in the literature and came to the conclusion that in only 7 could the lesion be placed in the geniculate ganglion.

It is not my purpose to debate the relative merits of these divergent views concerning the site of the lesion in this condition. When it is recalled that the region of the auricle and external auditory canal is supplied by four cranial nerves and by the upper cervical nerves, and that the facial nerve anastomoses with these, it becomes apparent that paralysis of the facial nerve with herpetic lesions on or about the auricle may result from involvement by zosteriform inflammation of the ganglions of any of these nerves and does not necessarily indicate involvement of the geniculate ganglion, as claimed by Hunt. It is preferable to reserve the name Hunt's syndrome for those cases of herpes zoster oticus in which the lesion can be demonstrated in the geniculate ganglion either by histopathological study or by topognostic analysis.

Herpes zoster oticus may occur in any one of four different forms depending on the severity and extent of the zosteriform involvement. Simple herpes of the concha and external auditory canal without neurological signs may be the sole manifestation of the disease. In the severer forms neurological symptoms are always present. Paralysis of the face occurs when the facial nerve is involved; diminished hearing and tinnitus with involvement of the cochlear division of the acoustic nerve and deafness, tinnitus, vertigo, nausea, and vomiting occur when the vestibular portion of the eighth nerve is affected. One or more of these nerves may be affected in any one patient. The changes in these nerves under such circumstances are usually reversible as the zosteriform inflammation recedes, but, on occasion, residua remain that are permanent. There is no specific treatment for this affection of the facial nerve. Symptomatic and supportive treatment depending on the severity of the condition appears to be all that can be offered the patient while the disease runs its course.

Geniculate Neuralgia.—Although herpes zoster oticus is a painful affliction, it does not compare in severity with the pain experienced by a patient suffering from geniculate neuralgia. Since the geniculate ganglion is presumed to be the ganglion and the nerve of Wrisberg the sensory root for the sensory component of the facial nerve, this disorder is sometimes spoken of as tic douloureux of the nervus intermedius. Clark and Taylor [11] reported a case in 1909 in which the patient required 12 grains of morphine daily to obtain relief from the pain. The pain usually occurs in paroxysms, just as does typical tic douloureux of the trigeminal nerve with which it has been confused. It is intense, located deep within the ear, and usually does not radiate until the disease has been present for some time. There are no associated herpetic lesions or neurological signs such as are encountered with herpes zoster oticus. As the duration of the disease progresses, radiation of pain to the face, periauricular area, and neck does occur but is not as severe in these locations as it is deep within the ear. Occasionally, a minute trigger zone can be demonstrated on the posterior superior wall of the external auditory canal just lateral to the annulus of the tympanic membrane.

Geniculate neuralgia is a rare condition, and its etiology is unknown just as is the etiology of idiopathic neuralgia of the trigeminal or glossopharyngeal nerves. From personal experience, however, I know that an osteitis about the geniculate ganglion secondary to chronic suppurative otitis media can produce pain of this nature; I have performed a radical mastoidectomy and exposed the geniculate ganglion in one patient presenting this symptomatology, and complete relief of the pain was obtained.

When there is radiation to the face, the pain of geniculate neuralgia may be confused with that of trigeminal neuralgia. The differential diagnosis should not be difficult, however, if it is remembered that the primary site of the most intense pain is localized deep within the ear in geniculate neuralgia in contradistinction to the face, eye, or lower jaw as is the case in trigeminal neuralgia. Glossopharyngeal neuralgia may cause pain in the ear in conjunction with that in the throat, but the pain produced by neuralgia of the geniculate ganglion is never referred to the pharynx or posterior third of the tongue. In addition, trigger areas frequently are present on the face or in the mouth when the pain is due to trigeminal neuralgia or, in glossopharyngeal neuralgia, on the posterior third of the tongue or pharyngeal wall. These trigger areas serve to initiate the painful attack on washing the face, brushing the teeth, chewing, or swallowing.

10. Tschiassny, K.: Site of Facial Nerve Lesion in Cases of Ramsay Hunt's Syndrome, Ann. Otol., Rhin. & Laryng. 55: 152-174, 1946.

11. Clark, L. P., and Taylor, A. S.: True Tic Douloureux of the Sensory Filaments of the Facial Nerve: 1. Clinical Report of a Case in Which Cure Was Effected by Physiologic Extirpation of the Geniculate Ganglion; 2. Report of Surgical Treatment, J. A. M. A. 53: 2144-2146 (Dec. 25) 1909.

Medical treatment is usually ineffectual in either relieving or preventing the attacks of pain. I routinely employ a so-called neuralgia regimen, which consists of a mild sedative, thiamin hydrochloride 10 mg., nicotinic acid 50 mg., and ferrous carbonate 1 gm. three times daily in all cases of typical or atypical facial neuralgia, and this may be helpful in diminishing the intensity and the frequency of the paroxysms of pain in this condition; however, permanent and complete relief can be obtained through intracranial section of the nervus intermedius.[12] Three of the four patients whom I have encountered and the three that have been reported in the literature since 1909 have obtained complete and permanent relief from their symptoms by intracranial section of the nervus intermedius.

MOTOR DISTURBANCES

Disturbances of the motor division of the facial nerve are manifested by paralysis, twitching, or spasm of the muscles concerned with facial expression. Paralysis of the posterior belly of the digastric, stylohyoid, and stapedius muscles, which also receive their nerve supply from the facial nerve, produces such insignificant symptoms that there is no need to consider them in this discussion. Facial paralysis is the most important disorder of the facial nerve. Lacerations of the face; surgical intervention on the parotid gland, mastoid process, or acoustic nerve; fractures of the skull; acute or chronic suppurative otitis media; labyrinthitis or petrositis; malignant disease or cholesteatoma of the temporal bone; intracranial lesions; tumor of the facial nerve; Bell's palsy; herpes zoster oticus; birth injury; or congenital maldevelopment all may result in paralysis of the facial nerve.

Central and Peripheral Facial Palsy.—Facial palsy may be either central or peripheral in origin. Supranuclear lesions of the facial pathway do not completely paralyze those muscles habitually acting bilaterally in unison, such as the frontalis, owing to their bilateral innervation from both motor cortices and, therefore, result in incomplete paralysis of the face. Facial paralysis of this nature is spoken of as central facial palsy. Lesions of the nucleus of the facial nerve, or of the nerve in the course distal to it, cause homolateral paralysis of all muscles supplied by this nerve except in those instances in which the lesion involves one or more, but not all, of the terminal branches of the facial nerve and, therefore, results in partial paralysis of the face. Palsy of this nature, even though incomplete, is spoken of as peripheral facial paralysis.

Supranuclear lesions of the facial nerve are of interest only in that they aid in the localization of the intracranial lesion since they are produced by lesions of the cortex or those affecting the facial fibers during their course from the cortex down to the facial nucleus in the medulla. Supranuclear lesions in the brain stem or lesions from the cortex down to the internal capsule and pes pedunculi produce a contralateral central palsy, usually as a part of a hemiplegia. The lesion may be an arteriosclerotic vascular softening, but other processes such as trauma, tumor, or inflammation may be the cause. Impairment of only the lower portion of the muscles of the face is seen in voluntary movement as well as in emotional activity. Lesions of the thalamus affect involuntary actions such as laughing or crying more than voluntary movements of the face, whereas, when the corticofugal fibers to the facial nucleus are involved, the emotional response does not show any paresis and may even be exaggerated while the volitional movements of the face are paretic.

Congenital Facial Paralysis.—When facial paralysis is noted at or shortly after birth it is considered to be of congenital origin.[13] It occurs as a result of obstetric injury or disorders of embryologic development, and its prognosis is dependent on the factors that produced the palsy. Facial paralysis caused by trauma to the extracranial portion of the seventh cranial nerve during forceps deliveries is usually unilateral and is the result of direct trauma to the nerve after its emergence from the stylomastoid foramen by the blade of the forceps or by indirect pressure from edema or extravasation of blood into the injured soft parts surrounding the nerve. Rarely, the paralysis may be of the central type as a result of trauma to the facial area in the cortex or of hemorrhage involving the upper neuron.

Unilateral facial paralysis may also occur because of injury to the facial nerve as a result of inherent pressure factors during pregnancy and labor. Facial paralysis occurring during the latter months of pregnancy caused by the head being pressed against the shoulder is associated with cranial and facial asymmetry. This occurs in patients in whom the intrauterine pressure is greater than usual, such as might be found in first pregnancies with large babies or in multiple pregnancies. Protracted labor with large babies, contracted pelves, or both may cause peripheral facial paralysis as a result of pressure on the facial nerve by the sacral promontory or other bony prominences of the birth canal. A central type of palsy secondary to a depressed fracture of the skull impinging on the facial area of the motor cortex or to hemorrhage in this region may occur in a similar manner.

Facial paralysis caused by embryologic maldevelopment is rare. The majority of such cases are bilateral, and, because of the close proximity of the nuclei of the sixth and seventh cranial nerves, there is almost invariably an associated abducens palsy. In addition, various combinations of developmental defects may accompany these diplegias, such as paresis or paralysis of the oculomotor, motor trigeminal, glossopharyngeal, and hypoglossal nerves, clubfoot, and malformation of the upper extremity and chest. Occasional cases presenting unilateral facial paralysis without other associated cranial palsies have been reported. The paralysis of the face is usually complete, but when incomplete the superior group of muscles is more severely affected. The etiology is obscure, although there is a suggestion that the formation of an excessive amount of cerebrospinal fluid may be the explanation. Histopathological study of four

13*b*. Henderson, J. L.: Congenital Facial Diplegia Syndrome: Clinical Features, Pathology and Aetiology: Review of 61 Cases, Brain **62**: 381-403, 1939.

cases has revealed that nuclear hypoplasia accounts for the cranial nerve palsies in all typical cases of the syndrome.

There is no specific treatment for congenital facial paralysis. The prognosis for spontaneous recovery from the palsy in those cases due to obstetric causes is influenced by the manner in which the injury to the nerve has occurred. Thus, the prognosis for spontaneous recovery from facial paralysis of the peripheral type is good in those cases in which the injury to the nerve follows pressure from the application of obstetric forceps or impingement on a bony prominence of the birth canal during labor. However, when the palsy produced by these factors is of the central type or when the paralysis occurs as a result of the head being pressed against the shoulder during the latter months of pregnancy the prognosis is not so favorable. The prognosis for improvement in facial paralysis when it is the result of embryologic maldevelopment is poor.

It appears to me that there may be an interesting sidelight to this subject. Each of the articles I reviewed presented illustrations of facial paralysis considered to be secondary to nuclear hypoplasia. I was struck by the fact that none of these patients presented the marked drooping of the face such as is seen in adult patients with unresolved facial palsy of long standing. This observation is also true of two children whom I have seen in consultation because of complete peripheral facial paralysis of two or three years' duration following excision of a tumor of the neck and lower parotid region. I have explored the facial nerve in both of these children and found that it responded adequately to a faradic stimulus applied directly to the nerve. Following exploration of the nerve in these patients there has been no improvement in the facial paralysis. The fact that the facial nerve in these two children responded to faradic current together with the observation that those cases of facial paralysis with nuclear hypoplasia apparently present little if any sagging of the face suggests that those patients with paralysis of the facial nerve who fail to show any evidence of recovery in spite of adequate treatment may have had a concomitant nuclear degeneration. Marked facial asymmetry is lacking in such patients probably because there is sufficient activity of the lower motor neuron only to sustain facial tone.

Bell's Palsy.—One of the most controversial enigmas of modern medicine is Bell's palsy. The etiology of this condition remains a conjecture, although the *modus operandi* of the production of the palsy appears to be reaching a state of equilibrium. Kettel,[14] Sullivan,[15] and Hilger [16] agree that the paralysis of the nerve is initiated by a disturbance in the blood supply of the nerve producing an ischemia but do not agree on the significance of the edematous neuropathy that follows. Kettel and Hilger believe that it is the edema itself that produces the paralysis of the nerve, while Sullivan thinks that the paralysis is the result of pressure on the nerve from the edema.

Difference of opinion also exists as to the proper management of this affection of the facial nerve. It has been loosely estimated that between 75 and 85% of these patients spontaneously recover from the palsy. As a result treatment has been directed more toward symptomatic and psychological relief than toward correcting the pathological process that is thought to be the cause of the paralysis. At the present time treatment appears to vary between doing nothing at all to surgical intervention in every case exhibiting a negative faradic test.

Electrical stimulation of the facial nerve is the most common and, to my mind, the most useless single form of treatment employed, since it has absolutely no therapeutic effect on the paralysis of the nerve. The administration of vasodilator drugs such as nicotinic acid (niacin) by mouth or procaine hydrochloride intravenously in an effort to relieve the ischemia of the facial nerve is currently popular. Procaine hydrochloride in a dosage of 4 mg. per kilogram of body weight to a liter of distilled water may be of benefit when administered early in the course of Bell's palsy, but it has the disadvantage that it can neither be utilized as a routine method of office treatment nor be economically used for prolonged treatment. Although nicotinic acid, 50 to 100 mg. four times a day, may not be as efficacious in relieving the vasospasm, it has the advantage that it can be used in an ambulatory patient over a long period. It would seem that administration of a combination of a vasodilator drug and procaine hydrochloride intravenously early in the course of the disease, supplemented by nicotinic acid by mouth for prolonged effect, would offer the best prognosis for resolution of the reversible changes produced in the nerve by the disturbance of circulation. When the patient is seen late and it is certain that axonal degeneration has occurred, perhaps surgical intervention would be of help in reestablishing the circulation and permit more rapid recovery from the palsy.

Kettel,[14] Cawthorne,[17] and Sullivan [15] are proponents of decompressing the facial nerve in an effort to cure Bell's palsy. Cawthorne and Sullivan believe that, when the palsy is complete and the nerve does not respond to faradic current, decompression of the facial nerve is advisable in order to give the patient every opportunity to obtain complete recovery from the palsy. Kettel, on the other hand, does not rely on the faradic test and advises decompression in those patients in whom signs of beginning mobility have not appeared after an observation period of two months. Furthermore, he advises decompression of the facial nerve if spontaneous recovery becomes arrested before complete restitution has occurred. A more conservative attitude is taken by Hilger, who holds that, as long as the opportunity for spontaneous recovery is not being jeopardized by waiting, surgical intervention seems contraindicated. It would be difficult to select which patient required decompression of the nerve on the basis of any information obtained thus far. If this procedure is to be effective, it should be instituted before degeneration has occurred and, therefore, while the faradic response is still present. Perhaps if there were some way to determine which

15. Sullivan, J. A., and Smith, J. B.: The Otological Concept of Bell's Palsy and Its Treatment, Ann. Otol., Rhin. & Laryng. **59**: 1148-1170, 1950.
16. Hilger, J. A.: The Nature of Bell's Palsy, Tr. Am. Laryng., Rhin. & Otol. Soc. **45**: 213-221, 1949.

case of Bell's palsy was ultimately to lose the faradic response, decompression of the facial nerve for this condition could be placed on a much sounder basis and in a more logical position. Until this is possible, however, it appears that whether or not the facial nerve in a case of Bell's palsy should be decompressed will depend on the surgeon's personal criteria.

Between the extremes of doing nothing at all and early surgical intervention in every case some happy medium must eventually evolve, which will afford the patient the maximal opportunity for recovery from the paralysis. The first step toward this goal should be a pooling of information relative to these cases so that an accurate assessment can be made of the possibility of obtaining complete recovery, recovery with associated movements, or partial recovery, or whether there will be failure to obtain any recovery from the facial paralysis. If, in addition, these data could be correlated with that of electrodiagnostic tests, the interval between the onset and the first clinical evidence of spontaneous recovery from the palsy, the severity of the paralysis, and symptoms associated with it, further integration of information pertinent to this disease would be obtained. In this way the prognosis for salvage could be adequately established and the institution of appropriate treatment facilitated.

Melkersson's Syndrome.—Melkersson's syndrome resembles Bell's palsy to the extent that paralysis of the face occurs in the course of the disease. In the former, however, the palsy frequently recurs and either precedes or is concomitant with the appearance of what apparently is an angioneurotic edema of the lip and plication of the tongue. The greatest involvement by edema is in the upper lip, although the lower lip and face may also exhibit this change. This aspect of the disease is prone to be either recurrent or progressive, but in either case it ultimately results in the typical obnoxious picture of chronic lymphedema of the face, even though the facial palsy clears or long since has ceased to exist.

The etiology of Melkersson's syndrome is unknown. The pathogenesis is considered by Kettel [18] to be identical with that of Bell's palsy with an associated perivascular lymph stasis, chronic inflammation, and mild interstitial fibrosis as manifestations of the neurogenic disturbance in the circulatory system of the face. It follows, therefore, that treatment should be similar to that for Bell's palsy, with x-ray therapy or plastic correction by appropriate excision of the edematous tissues an additional feature.

Management of Traumatic Facial Paralysis.—Traumatic facial paralysis as a result of mishap in otological surgery is not seen commonly in the practice of otolaryngology today. Nevertheless, injuries to the facial nerve still occur. Although facial palsy following surgery on the mastoid process has largely been eliminated, it has increased owing to other causes. Some of these are the result of progress in civilization. Trauma to the facial nerve following surgery for the extirpation of neoplasms of the brain, parotid gland, or face, and automobile accidents with severe lacerations of the face or fracture of the skull are more prevalent today than a generation ago. Furthermore, as long as man wields a knife or uses a gun in combat, facial paralysis will be present. It has definitely increased as a result of the nature of modern warfare.

Integration of pertinent information obtained from the history, clinical examination, and such roentgenologic and electrodiagnostic studies as are considered necessary permits assessment of the facial paralysis and the injury sustained by the facial nerve. Not until then can a plan of management be formulated that will afford the patient the greatest opportunity for relief of his facial palsy. Cognizance of what can be accomplished to relieve facial paralysis, experience, and surgical dexterity will influence the surgeon's choice of treatment. Only one of three choices can be made initially: treatment should not be instituted because it is believed that further improvement of the facial paralysis cannot be obtained; the facial paralysis should be observed for a time because the available data indicate that spontaneous recovery may occur; or surgery in some form should be employed to benefit the facial palsy.

The ultimate goal of surgical procedures on the facial nerve is the physiological restoration of its function. Operation, such as decompression, end-to-end suture, nerve grafting, or anastomosis of the distal stump of the facial nerve to the central end of an adjacent cranial nerve, effect this result in the majority of cases. With respect to the last procedure it is my opinion that hypoglossofacial anastomosis is preferable to spinofacial anastomosis.[19]

When facial paralysis fails to be benefited by any of these procedures or they are not applicable, either because the distal branches of the nerve cannot be found owing to antecedent surgery on the parotid area or because facial paralysis has existed for such a long period of time that atrophy of the facial musculature has occurred, improvement in the unsightly deformity of the face can be obtained only by plastic surgery. This may consist of either the transplantation of pedicled strips of adjacent muscle innervated by the fifth cranial nerve or mechanical support of the paralyzed side of the face. I have not had experience with the former. Stainless steel or tantalum wire and mesh, animal tendon, and autogenous fascia lata have been utilized to support the face mechanically. When the support is to be permanent, none give as good a result as do slings of autogenous fascia lata.

A description of the techniques involved in the performance of these operative procedures is not pertinent to this report. I should like to emphasize, however, that those procedures that reestablish the anatomic continuity of the facial nerve are as applicable to lesions of this nerve situated in the parotid gland and face as they are to those within the mastoid and middle ear. For some reason the impression is prevalent that a defect in the facial nerve situated in the parotid area or face is not amenable to surgical correction. This is not true. End-to-end suture or nerve grafts will restore the function of the facial nerve in such situations as well as in those located within the mastoid and middle ear. Surgeons who either accidentally or intentionally injure the facial nerve during an operation in this region should

18. Kettel, K.: Melkersson's Syndrome: Report of 5 Cases, with Special Reference to Pathologic Observations, Arch. Otolaryng. 46: 341-360 (Sept.) 1947.

be conscious of the fact that the ensuing paralysis of the face usually can best be relieved by the employment of these methods of nerve repair.[20]

The improvement in the paralysis of the face that will be obtained varies with the accuracy of the assessment of the facial paralysis and the surgical procedure employed, and between patients in whom identical measures have been used. For this reason, the surgeon should not be too optimistic in his description of what can be accomplished by treatment, for what will be satisfactory to one patient may not be to another. In general, best results are obtained with those operations that permit restoration of the anatomic and physiological continuity of the facial nerve. Thus, whenever possible, decompression, end-to-end suture, and nerve grafting should be employed to obtain improvement in facial palsy.

PAROXYSMAL HEMIFACIAL SPASM

Paroxysmal hemifacial spasm is the opposite of facial paralysis. In the majority of patients it is a minor, though distressing, neurological disease. When severe, however, it causes such a grotesque appearance of the face that the psychological and economic adjustment of the patient may be so seriously interfered with that almost any penalty is considered worth the price for relief. Rarely, hemifacial spasm may be bilateral, and, when severe, these patients are often almost completely disabled because of the clonic contractures about the eyes and mouth, which may seriously interfere with vision, speech, and eating.

The etiology is unknown.[21] Harris [22] believed that it is due to a degenerative lesion of the facial nerve at or below the geniculate ganglion. In support of this view is the not infrequent appearance of clonic spasm of the muscles of the face following recovery from facial paralysis, the associated facial weakness and contracture in long-standing cases of this condition, and the observation of Williams [23] that there is evidence of compression of the facial nerve near the stylomastoid foramen in patients on whom he has operated. The spasm is clonic in nature, involves the eyelids first, and usually progressively spreads to adjacent muscles until all muscles supplied by the facial nerve may be involved. The paroxysms are aggravated by emotional stress, fatigue, and voluntary movement of the face.

Treatment has run the gamut of man's imagination.[24] Medical treatment is of no avail except perhaps in the most minor instances in which mild sedation may be beneficial in minimizing the influence of extraneous aggravating factors. The greatest benefit from treatment has been obtained with those measures that result in paralysis of a portion or all of the facial nerve. This formerly was accomplished by the injection of alcohol into the nerve but has since largely been abandoned in favor of section of the nerve. The spasm usually recurs if regeneration of the nerve is permitted, and, therefore, Coleman [25] has suggested that, when the spasm is chiefly confined to the orbicularis oculi, the branch of the facial nerve to this muscle be sectioned and the proximal segment be redirected in order to prevent reneurotization of the distal portion. When unilateral involvement of all of the muscles is severe, Coleman advocated hypoglossofacial anastomosis in order to prevent recurrence of the hemifacial spasm and permanent paralysis of the face. I have employed selective section of the peripheral branches of the facial nerve, with excellent results. A faradic nerve stimulator applied directly to the exposed branches permits selection of the branch of the facial nerve producing the spasm in the involved region without indiscriminate sacrifice of other branches not directly concerned with its production. In no case has the resulting paralysis been obviously noticeable.

Williams has recently advocated decompression of the facial nerve in order to relieve the spasm of the face. He has operated on nine patients, with temporary facial paralysis occurring in all but two patients and alleviation of the hemifacial spasm in all patients. His first patient, however, who was operated on 15 months ago, is beginning to show slight return of the spasm. It is my belief that the relief that his patients have obtained was the result of the injury incurred by the facial nerve during the decompression rather than of relief of the compression of the nerve at the stylomastoid foramen. I anticipate that the majority, if not all, of these patients will have a recurrence of the hemifacial spasm, although it may be improved. This improvement may be sufficient ultimately to justify considering this surgical procedure as the treatment of choice, since permanent paralysis of the face would be eliminated. Certainly, it would seem that there is sufficient evidence that this operation is beneficial to warrant decompression of the facial nerve in a sufficient number of cases of this nature so that its correct status can be established.

TUMORS OF THE FACIAL NERVE

Tumors of the facial nerve are rare.[26] The tumors that have been reported in the literature are benign. They arise from the fibrous tissue elements concerned with the structure of a nerve and are rather loosely differentiated as neurinomas when their origin is from the Schwann cells and as neurofibromas when they arise from the interstitial fibrous tissue or nerve sheath of the nerve. For the purpose of this brief discussion, however, they can be considered as being of common identity since their symptomatology and treatment are alike, although disagreement exists among pathologists as to their differentiation.

The majority of these neoplasms of the facial nerve occur within the fallopian canal, although they may occur anywhere in the peripheral distribution of the facial nerve.[27] When they occur within the temporal bone, their initial symptom usually is the appearance of a slowly progressive facial paralysis; when they appear in the face or parotid gland, the most prominent feature is, most commonly, solitary tumor formation without paralysis of the face. Tumors of this nature are not invasive but cause local destruction of tissue by increase in size. Because their growth is slow, many months may

20. Lathrop, F. D.: Management of Traumatic Lesions of the Facial Nerve, A. M. A. Arch. Otolaryng. 55: 410-416 (April) 1952.

22. Harris, W., and Wright, A. D.: Treatment of Clonic Facial Spasm: By Alcohol Injection; By Nerve Anastomosis, Lancet 1: 657-662, 1932.

26a. Kettel, K.: Neurinoma of Facial Nerve, Arch. Otolaryng. 44: 253-260 (Sept.) 1946.

27a. Maxwell, J. H.: Extra-Temporal Repair of the Facial Nerve: Case Reports, Tr. Am. Otol. Soc., Inc., St. Louis, pp. 139-158, 1951.

elapse following the appearance of the facial paralysis before a positive diagnosis can be established by biopsy of neoplastic tissue, which either has perforated the tympanic membrane to appear in the external auditory canal or has eroded through the osseous external auditory canal. On rare occasions, the tumor may be suspect because of changes within the middle ear as seen through the intact tympanic membrane, and a positive diagnosis is established either by biopsy through a myringotomy opening or by an exploratory operation.

The treatment is adequate surgical excision of the tumor regardless of its location. The facial paralysis can then be relieved either by repairing the defect in the facial nerve with a nerve graft or, when the central end is inaccessible, by anastomosis of the distal stump of the facial nerve with the hypoglossal or spinal accessory nerve. I have had two such patients in whom satisfactory relief from the paralysis of the face has been obtained with these methods of treating facial paralysis.

SUMMARY

The seventh cranial nerve is a mixed nerve and, therefore, the symptomatology of a disorder affecting it will depend on whether the smaller sensory component or the larger motor division, or both, is involved in the pathological process. Thus, affections of the sensory portion are manifested by pain in the ear, while paresis, paralysis, or hyperkinesia of the muscles of expression of the face is observed when the motor component alone is affected. Not infrequently, an affection of the facial nerve involves both of the components, and, when this is the case, pain in or about the ear and paralysis of the face occur.

The facial nerve is subject to disease just as is any organ of the body. Paralysis of the face, whether secondary to Bell's palsy or to injury of the nerve, is the most commonly encountered affection of the facial nerve, and its effect on the economic and psychological adjustment of the patient may be profound; however, other disorders of this nerve may be, on occasion, even more distressing and disabling than is facial palsy. The pathogenesis and treatment of the disorders of the facial nerve have been briefly discussed.

605 Commonwealth Ave.

Skeletal Traction in Treatment of Fractures.—Skeletal traction treatment, which has usually been classified in the past as conservative, appears to the writer to be rapidly becoming a radical treatment. Too frequently are its limitations and indications being abused. The medical profession should not become overenthusiastic regarding the skeletal traction methods and assume that a panacea has been found for the treatment of all fractures. The writer still advocates and practices the use of skeletal traction in selected cases which in his opinion are ideal, and when indicated, application should be carried out without hesitancy. Rarely, if ever, are these selected cases in children, due to possible epiphyseal injury.

Skeletal traction has saved many extremities when properly used. The method demands close observation and patience. In the majority of instances, if used when indicated, good results will be obtained. Indiscriminate application of foreign material through the medullary canal should not be practiced.—H. E. Conwell, M.D., Certain Problems in Fracture Treatment, *Journal of the Medical Association of Georgia*, August, 1952.

CLINICAL NOTES

LOCAL PAIN FROM INTRAMUSCULAR INJECTION OF STREPTOMYCIN CALCIUM CHLORIDE COMPLEX

William Long, M.D.
William Weiss, M.D.
and
Samuel C. Stein, M.D., Philadelphia

Because of frequent complaints of pain by patients receiving streptomycin injections on the tuberculosis wards of the Philadelphia General Hospital, an investigation was made to determine the cause. After eliminating obvious variables such as the method of injection and the size of the needle used by the nurses, it was discovered that two different salts of streptomycin were being used haphazardly, the sulfate and the calcium chloride complex, both supplied by the same pharmaceutical company. Since a previous report by Durrance [1] stated that calcium chloride complex salt of streptomycin caused pain when injected intramuscularly, the following study was carried out.

Incidence of Local Pain from Intramuscularly Injected Streptomycin Salts in Sixty-Five Patients

	No. of Spontaneous Complaints		No. of Elicited Complaints
Calcium chloride complex...	Feb. 8 13	Feb. 12 11	Feb. 15 31
Sulfate salt.....	Feb. 22 1	Feb. 26 1	Feb. 29 1

Over a period of several weeks, biweekly injections were given to 65 patients. The calcium chloride complex was used in the first three injections, and the sulfate salt was substituted in the last three injections. Spontaneous complaints of pain at the time of injection or within the following 24 hours were noted. After the third injection of each salt, the patients were questioned, and the complaints elicited were noted. The results are given in the table. The salt used each time was known to the person giving the injections. In order to control any psychogenic influence, the experiment was repeated. The two salts were prepared by one person and injected by another person, without the latter knowing which salt he was using. This was accomplished by mixing the salts with sodium chloride solution (1 gm. per 4 cc.), each solution being put in separate bottles labeled "A" and "B." Twenty-five patients were given injections of the "A" solution, and the injections were repeated in the same patients several days later with the "B" solution. When the calcium chloride complex was administered, three patients complained spontaneously of pain at the

From the Department of Chronic Diseases of the Chest, Philadelphia General Hospital.

The streptomycin salts were supplied by Dr. Stephen Fromer of Merck & Company, Inc., Rahway, N. J.

1. Durrance, J. R.: Local Reactions Attributed to Intramuscular Calcium Chloride Complex of Streptomycin, Transactions of the 10th Conference on the Chemotherapy of Tuberculosis, January, 1951, United States Veterans Administration, 1951, page 229.

site of injection, and five patients on questioning admitted having pain. When the sulfate salt was used, none of the patients complained either spontaneously or on questioning. On the basis of these results, it is concluded that intramuscular injection of the calcium chloride complex of streptomycin causes local pain in some persons, while streptomycin sulfate rarely does so.

34th St. and Curie Ave. (4) (Dr. Weiss).

STRESS FRACTURES OF RIBS IN SUCCESSIVE PREGNANCIES

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Recent papers by Cohen,[1] Mitchell,[2] and Wynn-Williams [3] have called attention to rib fractures caused by coughing associated either with pulmonary tuberculosis or with no apparent pulmonary disease. This condition appears to be much commoner than is generally recognized. It would probably be diagnosed more frequently if suitable x-ray pictures, especially anterior oblique views, were taken of patients with complaints of sudden pain in the chest made worse on inspiration, sometimes following unusual exertion or a cough. Pains formerly dismissed as "muscle tears" in the thorax may well be unsuspected fractures of the ribs, especially of those of the lower thoracic cage.

Paulley, Lees, and Pearson [4] have reviewed the literature on cough fractures of ribs, especially those occurring in late pregnancy. Paulley [5] later mentioned four more rib fractures in pregnant women, stressing that they were all on the left side and affected the lower ribs. Chesney [6] reported a fracture of the left 11th rib in a pregnant woman who showed evidence of fibrosis and calcification of the left lung due to an arrested tubercular lesion.

REPORT OF A CASE

A 31-year-old woman in the last six weeks of pregnancy noticed a sudden sharp pain in the left lower side of the chest after the sudden exertion of lifting a chair. On examination an acutely tender area was found in the midaxillary line overlying the eighth rib. The pain was aggravated by inspiration. Suitable roentgenograms showed a fracture of the eighth rib. There was no evidence of pulmonary disease or abnormality. The chest wall was strapped, and local anesthetic solution was injected at the site of the fracture to relieve the pain. A sedative cough remedy was prescribed to alleviate the irritating cough that developed shortly. Ten days later, while straining at stool, the patient noticed a similar pain, this time located more anteriorly than the first. On examination a similar, tender area was found over the tenth rib approximately in the anterior axillary line; again a diagnosis of fractured rib was made. The patient eventually made an uninterrupted recovery. During her second pregnancy two years later, in the fifth week before term, again as a result of a sudden exertion (picking up her first child), she experienced a sudden, acute pain in the left lower chest. A roentgenogram revealed a fracture of the ninth rib in the posterior axillary line. The film also showed complete healing of the first two fractures. Since she had already experienced such similar discomfort previously, the patient was simply reassured, and no further action was taken. She was warned, however, not to overexert herself.

COMMENT

The seven cases of fractured rib reported by Cohen [1] occurred in patients with tuberculosis. He believed the most reasonable explanation of the fractures was the violent, abnormal, and uneven action, probably associated with asymmetrical posture, producing uneven action on the ribs, that occurs during the violent expiratory effort of a cough or sneeze. Furthermore, the diminished use of the thoracic musculature during a long bed confinement may effect a mild degree of decalcification and could be a contributing factor. The nine cases reported by Wynn-Williams [3] were unassociated with pulmonary tuberculosis and were diagnosed during a survey of 2,431 patients referred to a chest clinic. He did not think the fractures had any definite relation to pulmonary tuberculosis or pregnancy and offered no satisfactory explanation of their cause. Wynn-Williams also suggested that, unless a high incidence of such fractures is found in the future, it seems unnecessary to postulate any other than a fortuitous association, especially as the condition is commoner in women. Paulley,[5] however, stresses the fact that all the cases of left side, lower rib fractures reported so far occurred in the last three months of pregnancy and believes that this cannot be dismissed as coincidental. Paulley, Lees, and Pearson [4] had already suggested that a shearing stress occurs along the line between the origin of the external oblique muscle (on the lower four ribs) and the costal slips of the latissimus dorsi. This theory however, does not consider the long back muscles (sacrospinalis). In the stance of the pregnant woman the head and shoulders are thrown back; compensatory to this is a lordosis involving increased postural tone and, perhaps, hypertrophy of the iliocostalis and longissimus portion of the sacrospinalis. Incoordination or action of more than normal violence might occur in this muscle under such circumstances. Thus, forced expiration, as in coughing, with depression of the lower ribs by the iliocostalis could provide conditions for a shearing stress sufficient to fracture a rib.

In the case reported here it is suggested that the possible mechanism of the fracture may have included a sudden tightening of the anterior abdominal muscles that forced the uterine mass backward and upward. Displacement would tend to be to the left because of the mass of the liver on the right. Furthermore, in the action of lifting, the latissimus dorsi and the intercostal muscles were tensed and thus helped to bring about a play of forces that cause shearing stress.

If there had been any evidence of decalcification of the ribs as a result of the pregnancy, the chances of a fracture would have been increased, but Paulley and his associates showed that, in their cases, the calcium and phosphorus estimations were within normal limits. These fractures of the lower ribs in the latter weeks of

From the Chest Clinic, Camberwell, London.

1. Cohen, R. C.: Cough Fracture of Ribs, Brit. M. J. 1: 133, 1949.
2. Mitchell, J. B.: Cough Fracture, Brit. M. J. 2: 1492, 1951.
3. Wynn-Williams, N.: Cough Fracture of the Ribs Unassociated with Pulmonary Tuberculosis, Brit. M. J. 2: 1494, 1951.
4. Paulley, J. W.; Lees, D. H., and Pearson, A. C.: Cough Fracture in Late Pregnancy, Brit. M. J. 1: 135, 1949.
5. Paulley, J. W.: Cough Fracture in Late Pregnancy, Brit. M. J. 1: 162, 1952.
6. Chesney, W. M.: Cough Fracture in Late Pregnancy, Brit. M. J. 1: 274, 1952.

pregnancy appear to have a cause somewhat similar to "stress" fractures of the first and second ribs that may occur in persons (especially men) subjected to unaccustomed exertion.

SUMMARY

A case is reported in which two fractures of ribs occurred in the last weeks of the first pregnancy and one fracture occurred toward the end of the second pregnancy in a woman who was otherwise healthy. All the fractures were of the lower ribs, and left sided.

23 Brunswick Park.

AGRANULOCYTOSIS AND TOXIC HEPATITIS FROM METHIMAZOLE

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and
William S. Reveno, M.D., Detroit

That toxic reactions can occur from methimazole therapy, the newest of the antithyroid drugs, is attested to by the reports of several investigators.[1] These reactions follow the same general pattern noted with the other antithyroids and include at least two instances of agranulocytosis.[2] We are here reporting a third such case in which toxic hepatitis developed as an added complication.

REPORT OF A CASE

A white woman, aged 62, who was to have a cataract removed from the left eye was referred to us in April, 1947, because of nervousness, excess sweating, and palpitation. She had had insomnia and a voracious appetite with weight loss during the previous six months. The thyroid showed bilateral nodular enlargement, there was lid-lag and manual tremor, and the basal metabolic rate was + 15%. Improvement followed after one month of therapy with 300 mg. propylthiouracil daily and was maintained for a second month on 200 mg. daily. At this time the leukocyte count was 3,050 with 39% neutrophils and 61% lymphocytes, a significant drop from the initial count of 5,100 with 70% neutrophils and 24% lymphocytes. The propylthiouracil therapy was stopped, and the count soon returned to its normal level. At the end of four weeks, with the leukocyte count 4,200 and the neutrophils 71% and lymphocytes 28%, the propylthiouracil was resumed and continued without disturbance in a dose of 200 mg. daily for the next eight weeks. The patient was now euthyroid with a basal metabolic rate of −12%. The cataract was successfully removed with uneventful recovery. She was not seen again until December, 1951.

At this time she complained of recurrent palpitation, nervousness and insomnia, and again showed lid-lag and manual tremor. The thyroid gland was nodular throughout and larger than before. The basal metabolic rate was + 3%. Methimazole ("tapazole") was started in a dose of 5 mg. every 12 hours, and improvement in all symptoms was noted by the fourth week. The basal metabolic rate was −5%, and the blood cell count showed 4,000 leukocytes with 60% neutrophils and 40% lymphocytes. The initial count had been 4,600 leukocytes with 74% neutrophils and 25% lymphocytes.

Three weeks later, while still on the same dose of methimazole, with the euthyroid state maintained, mild jaundice of the sclera and skin was noted. A leukocyte count now was only 1,150 with 51% neutrophils and 45% lymphocytes. Methimazole was immediately stopped, and 600,000 units of penicillin were given parenterally. Two days later the blood cell count was 2,000 leukocytes with 54% neutrophils and 46% lymphocytes. Five days later the temperature suddenly went up to 103.6 F, the jaundice had deepened appreciably, and there was an abrupt fall to 750 leukocytes, all lymphocytes. The patient was hospitalized and subjected to intensive penicillin therapy. Little change was noted until the third day when the monocytes rose to 20%. On the fourth day the leukocyte count was 2,100 with 75% young neutrophils. On the fifth day it was 5,100 with 59% neutrophils. On the seventh day the count had reached 8,200 with 63% neutrophils. The temperature had dropped to normal on the sixth day of hospitalization and remained so from then on. The jaundice began to clear on the first day and had practically disappeared by the seventh day.

On discharge from the hospital there was no evidence of hyperthyroidism, and the remission has continued since then. The thyroid gland has gradually diminished in size.

SUMMARY

In the more than two years we have been using methimazole this is the first instance of a toxic reaction we have encountered. During this period we have followed 26 patients with hyperthyroidism and 5 with angina pectoris and have consistently used small doses of the drug. These have ranged from 6 to 20 mg. a day, with euthyroidism achieved in from six to nine weeks and maintained on an average of 5 mg daily. In the reported cases of agranulocytosis 30 mg. per day were used in both,[2] while in our case the dose was only 10 mg. per day. Thus, while euthyroidism may be attained with small doses of this drug, the size of the dose appears to have no bearing on the development of agranulocytosis. This parallels the experience we had with one such reaction from thiouracil and one from propylthiouracil.

Sensitivity to the drug is therefore an individual reaction that is unpredictable. In our patient warning might have been taken from the drop in the leukocyte count while taking propylthiouracil; however, experience has shown that it is unusual for toxic reactions from one of the antithyroid drugs to recur on change to another such drug.

Despite the low incidence of agranulocytosis among patients receiving antithyroid therapy of any kind, close observation is mandatory so that curative measures may be instituted while the disturbance is still reversible.

968 Fisher Bldg. (Dr. Reveno).

1. (*a*) Irwin, G. W.; Von Vactor, H. D., and Norris, M. S.: Propylthiouracil and Methimazole Therapy: Comparative Experiences, J. A. M. A. **149**: 1637-1640 (Aug. 30) 1952. (*b*) Croke, A. R., and Berry, J. W.: Agranulocytosis Occurring During Methimazole ("Tapazole") Therapy: Report of Case, ibid. **148**: 45-47 (Jan. 5) 1952. (*c*) Specht, N. W., and Boehme, E. J.: Death Due to Agranulocytosis Induced by Methimazole Therapy, ibid. **149**: 1010-1011 (July 12) 1952. (*d*) Bartels, E. C., and Sjogren, R. W.: 1-Methyl-2-Mercaptoimidazole: New Active Antithyroid Agent, J. Clin. Endocrinol. **11**: 1057-1062 (Oct.) 1951.

2. Croke and Berry,[1b] Specht and Boehme.[1c]

Barbiturate Intoxication.—In 1948 over 300 tons of barbiturate drugs were produced and sold to the public—a 400% increase over the output in 1933. In 1951 barbiturates caused more than 1,000 recorded deaths, as compared with 520 in 1944. In 25% of all cases in which persons are admitted to general hospitals because of acute poisoning, barbiturates are the intoxicant. Current insurance statistics indicate that barbiturates are the agents of death in 6% of suicides and 18% of accidental deaths of policyholders. These figures do not include the untold number of attempts at suicide by the use of the drugs and of deaths in which they were an unrecognized factor. The incidence of barbiturate addiction is unknown but is suggested by the increasing number of admittances for barbiturate psychosis to all hospitals. —E. A. Hargrove, M.D., A. E. Bennett, M. D., and F. R. Ford, Acute and Chronic Barbiturate Intoxication: Recent Advances in Therapeutic Management, *California Medicine*, December, 1952.

ALLERGIC SKIN REACTION TO PROCAINE AMIDE HYDROCHLORIDE

REPORT OF A CASE

Arthur Koffler, M.D., Stamford, Conn.

Procaine amide (Pronestyl) hydrochloride has been used effectively in the treatment of cardiac arrhythmias of ventricular origin since Mark and his co-workers [1] demonstrated its effectiveness in 1950. They proved that the amide of procaine is hydrolized much less rapidly than is procaine, and that the plasma levels are sustained. Procaine amide hydrochloride is completely absorbed by the gastrointestinal tract. Mark and his co-workers demonstrated the suppression of premature ventricular contractions in man. They also terminated, by the use of this drug, prolonged attacks of ventricular tachycardia in three out of four persons.

The only note of caution sounded early in the usage of this new drug was, "Occasional transient electrocardiographic changes resembling those of quinidine intoxication have been observed with procaine amide hydrochloride and should be interpreted by a cardiologist. Intravenous injection is subject to the danger of hypotensive action; oral administration is not."[2] Therefore, until recently procaine amide hydrochloride was considered to be a drug free of serious side-reactions. As recently as July, 1951, Miller and co-workers [3] said, "Reactions to intravenous procaine amide were mild and infrequent . . . three patients complained of a sense of 'tension and jitteriness' while on maintenance doses of procaine amide by mouth." Recently, however, severe and even fatal side-reactions have been noted to occur with the use of procaine amide hydrochloride. Among the untoward reactions published were agranulocytosis,[4] fatal ventricular fibrillation,[5] ventricular acceleration,[6] fever,[7] and allergy to procaine amide.[8]

A 57-year-old white male physician was seen at my office on July 23, 1950, complaining of cardiac irregularity, a tugging sensation in the throat and epigastrium, together with mild dyspnea of several days' duration. There were no signs of cardiac failure, cardiac hypertrophy, or murmurs, and the heart sounds were of good quality. The pulse revealed a coupled rhythm, with compensatory pauses indicating ventricular extrasystoles. The electrocardiogram taken at this time showed frequent ventricular extrasystoles. There was no electrocardiographic evidence of myocardial degeneration. There was no history of previous hypersensitivity to novocaine or other drugs.

Procaine amide hydrochloride, 50 mg., was administered orally. Within 20 minutes the pulse became regular and remained so for about two hours, after which time the cardiac irregularity (ventricular extrasystoles) recurred, but less frequently. During this interim there occurred itching, burning of the palms of both hands and soles of both feet, together with angioneurotic edema. The itching became intolerable, and within 30 minutes following the administration of procaine amide hydrochloride giant urticarial wheals also occurred over the skin of the back. Chlorcyclizine (perazil®) hydrochloride, 100 mg., was administered in one dose orally, and thephorin® (2-methyl-9-phenyl-2,3,4,9-tetrahydro-1-pyridindene hydrogen tartrate) ointment was applied locally to the involved areas of the skin. Total amelioration of the allergic symptoms occurred within one hour. Normal cardiac rhythm returned in one week. No fever occurred; eosinophil count was refused by the patient.

This patient has no history of any previous allergic reactions and has shown none since. There has to this date, two years later, been no recurrence of the ventricular premature contractions. A retest dose of procaine amide hydrochloride was suggested, but the physician-patient refused to take it.

218 Bedford St.

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2. Procaine Amide Hydrochloride, Council on Pharmacy and Chemistry: New and Nonofficial Remedies, J. A. M. A. **144**: 1465 (Dec. 23) 1950.
3. Miller, H.; Nathanson, M. H., and Griffith, G. C.: The Action of Procaine Amide in Cardiac Arrhythmias, J. A. M. A. **146**: 1004 (July 14) 1951.
4. Inouye, M.; Millar, J., and Townsend, J. H.: Agranulocytosis Following Maintenance Dosage of Pronestyl: Report of Severe Case with Recovery, J. A. M. A. **147**: 652 (Oct. 13) 1951.
5. Read, J. M.: Fatal Ventricular Fibrillation Following Procaine Amide Hydrochloride Therapy, J. A. M. A. **149**: 1390 (Aug. 9) 1952.
6. Denney, J. L.; Miller, H.; Griffith, G. C., and Nathanson, M. H.: Ventricular Acceleration Following Procaine Amide Hydrochloride Therapy, J. A. M. A. **149**: 1391 (Aug. 9) 1952.
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PEPTIC ULCER PERFORATION FOLLOWING ADMINISTRATION OF PHENYLBUTAZONE

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Lieut. N. E. Adamson Jr.
and
Commander J. B. MacGregor (MC), U.S.N.R.

Phenylbutazone (Butapyrin and Butazolidin) has been rather widely employed recently in the treatment of arthritic and rheumatoid conditions. Although reports in the American literature are, at present, scanty, numerous undesirable effects have been reported following administration of this drug. Occurring in 23 to 44% of patients reported on, these untoward reactions have included dermatitides, edema, vertigo, anemia, and gastrointestinal complaints.[1] Several observers have noted the appearance or reactivation of duodenal ulceration following the administration of phenylbutazone, confirmed in many instances by roentgen study. It has been observed that all these manifestations cleared on discontinuance of use of the drug. We have found no previous reports of peptic ulcer perforation occurring during or immediately following the administration of phenylbutazone and believe, therefore, that the following cases should be recorded.

REPORT OF CASES

CASE 1.—A 54-year-old white man, a government purchasing agent, was admitted to the United States Naval Hospital, Bethesda, Md., on Nov. 6, 1952, complaining of severe abdominal pain of seven hours' duration. The pain was sudden in

Dr. Walter L. Nalls, Alexandria, Va., referred the patient in case 1 to us and aided in authenticating the patient's past history.

Surgical Service (Lieutenants Shields and Adamson) and Medical Service (Commander MacGregor), United States Naval Hospital, National Naval Medical Center, Bethesda, Md.

The opinions and conclusions expressed in this paper are those of the authors and are not to be construed as necessarily reflecting those of the Medical Department of the United States Navy or of the naval service at large.

1. Stephens, C. A. L., Jr., and others: Benefits and Toxicity of Phenylbutazone (Butazolidin®) in Rheumatoid Arthritis, J. A. M. A. **150**: 1084 (Nov. 15) 1952. Steinbrocker, O., and others: Phenylbutazone Therapy of Arthritis and Other Painful Musculoskeletal Disorders, J. A. M. A. **150**: 1087 (Nov. 15) 1952. Kuzell, W. C.; Schaffarzick, R. W.; Brown, B., and Mankle, E. A.: Phenylbutazone (Butazolidin®) in Rheumatoid Arthritis and Gout, J. A. M. A. **149**: 729 (June 21) 1952. Granirer, L. W.: Untoward Effects of Phenylbutazone (Butazolidin®), Correspondence, J. A. M. A. **150**: 1332 (Nov. 29) 1952. Davies, H. R.; Barter, R. W.; Gee, A., and Hirson, C.: Observations on the Use of "Butazolidin" in Arthritis, Brit. M. J. **2**: 1392 (Dec. 27) 1952.

onset, constant, and severest in the right lower quadrant. This acute episode had been preceded for seven days by an "upset stomach," characterized by gnawing and intermittent upper abdominal pain. There had been no nausea, vomiting, diarrhea, or melena. There was no previous history of duodenal ulcer. The patient had a three year history of osteoarthritis of the lumbar spine and had been treated in another hospital in January, 1950. At that time he had a routine gastrointestinal examination, including a barium study of the stomach and duodenum, which was reported as normal. He was started on phenylbutazone therapy by his private physician on Oct. 21, 1952 (400 mg. daily, orally). One week later he revisited his physician and appeared greatly improved, and the dosage of the drug was increased to 600 mg. daily. It was after this increase that the patient began having the symptoms of an "upset stomach."

On examination, the patient appeared acutely ill, with an oral temperature of 102 F, a pulse rate of 108 beats per minute, a respiratory rate of 24, and a blood pressure of 160/70. The chest was clear to percussion and auscultation. The abdomen did not move with respiration and was rigid to palpation. Tenderness and rebound tenderness were generalized but most pronounced in the epigastrium and right lower quadrant. Peristalsis was hypoactive. Rectal examination revealed moderate, diffuse tenderness. The leukocyte count was 17,750 per cubic millimeter, with 76% polymorphonuclear leukocytes, the hemoglobin level was 13.5 gm. per 100 cc. (Hayden-Hausser), and the red blood cell count was 4,760,000 per cubic millimeter. Urinalysis was normal. The serum amylase level was reported as 95 Somogyi units. An upright film of the abdomen revealed free air beneath both hemidiaphragms; a roentgenogram of the chest was normal.

Two hours after admission, with the patient under spinal anesthesia, the abdomen was opened through an upper, midline incision. On entering the peritoneal cavity, there was a "gush" of air, and gastric content was seen to be dispersed over the viscera. The visceral peritoneum was moderately injected. There was a perforation of the anterosuperior surface of the first portion of the duodenum, measuring 6 mm. in diameter. The surrounding wall was edematous and hyperemic but not indurated or scarred. The perforation was sealed with two Lembert sutures placed over an omental tab, and the abdomen was closed. The patient's postoperative course was entirely satisfactory, and a recent report from his private physician reveals that he has had no further gastrointestinal complaints.

CASE 2.—A 56-year-old white housewife was admitted to the United States Naval Hospital, Bethesda, Md., on Dec. 25, 1952, complaining of abdominal pain of five hours' duration, which began suddenly in the hypogastric area as a severe, sharp, intermittent pain and radiated into the right upper quadrant, where it persisted. Shortly after onset, the patient became nauseated and vomited once, the vomitus consisting of recently ingested food. In her long medical history, the patient had never experienced a similar episode of abdominal pain. An abdominoperineal resection had been performed for carcinoma of the rectum in 1944. Since that time the colonic stoma had functioned satisfactorily. In June, 1951, low back and left hip pain developed, which progressed in severity, necessitating use of increasing doses of narcotics for control. Roentgenographic and radioactive gallium uptake studies failed to reveal any metastatic lesions, and, on Oct. 19, 1951, an arthrodesis of the left sacroiliac joint was performed. This afforded only partial, temporary relief of pain, and symptoms soon recurred with greater severity. Because of the severe intractable pain, a right anterolateral chordotomy at the level of the third thoracic vertebra was performed on March 14, 1952. There was gradual return of the pain, involving the lower half of the spine, the hips, and the left knee, but not of the severity previously experienced. Subsequent roentgenograms revealed changes in the sacroiliac joints, bilaterally, suggesting rheumatoid spondylitis. On Dec. 15, 1952, the patient was started on a course of phenylbutazone (600 mg. daily, orally), and this was continued for one week. When there was no relief of pain at the end of this period, administration of this medicament was stopped and cortisone was given orally. In the 48 hour period preceding onset of abdominal pain, the patient received 250 mg. of cortisone in divided doses. She had taken her last phenylbutazone 72 hours prior to the onset of this pain.

On admission, the patient was acutely ill. Her temperature was 96.2 F, pulse rate 60 beats per minute, and blood pressure 114/62. Respirations were rapid and shallow, and the skin was cool and moist. Except for a few rales at both bases, the lung sounds were normal. Heart sounds were distant, and the rhythm was normal. The abdomen was flat, and abdominal respiratory motions were absent, although there was no muscle spasm. There was marked generalized abdominal tenderness, without localization. Normal peristaltic sounds were heard. No masses were palpated. A colonic stoma was present in the left lower quadrant. Results of vaginal examination were normal. The red blood cell count was 4,000,000, the hemoglobin level 12 gm. per 100 cc., and the leukocyte count 9,950, with 16% band cells, 69% polymorphonuclear leukocytes, and 15% lymphocytes. Results of urinalysis were normal. An electrocardiogram showed evidence of right bundle branch block. Roentgenograms revealed air beneath the diaphragms and also an unsuspected partial right hydropneumothorax. (A routine chest roentgenogram two weeks earlier had been reported as normal.) Iodized oil (Lipiodol) was introduced into the esophagus through a Levine tube and was seen to pass readily into the stomach; no evidence of esophageal rupture was seen.

Laparotomy was performed at the conclusion of these studies, and a 0.5 cm. perforation was found in the anterior portion of the prepyloric area of the stomach. The surrounding tissue was indurated and thickened, but the first portion of the duodenum was pliable, showing no evidence of deformity. The proximal portion of the stomach was grossly normal. The perforation was closed with two silk sutures, and about 200 cc. of gastric contents were recovered from dependent areas within the peritoneal cavity. The abdomen was closed without further exploration and without drainage.

The patient's postoperative course has been uneventful. Barium studies of the upper gastrointestinal tract done on Feb. 3, 1953, revealed a normal esophagus, but a persistent deformity of the antrum of the stomach was noted. No definite ulcer crater could be demonstrated, and this deformity was thought to be the end result of the perforation and repair of the gastric ulcer. The right lung has reexpanded almost completely. Repeated thoracenteses have been performed, with aspiration of from 40 to 100 cc. of straw-colored fluid from numerous loculated areas. No organisms have been cultured from this fluid, and no tumor cells have been identified. The patient has had no gastrointestinal complaints following the immediate postoperative period, and at no time has she had chest symptoms. It is planned to repeat the gastrointestinal studies in four to six weeks, even in the absence of further symptoms.

Several reports have appeared attributing gastrointestinal bleeding to phenylbutazone. Our next case is that of duodenal ulcer bleeding that occurred during phenylbutazone therapy.

CASE 3.—A 61-year-old naval officer was admitted to the United States Naval Hospital, Bethesda, Md., Dec. 10, 1952, following the passage of multiple, tarry stools, which were proved by laboratory examination to contain blood. He had no other gastrointestinal complaints and denied a history of duodenal ulcer. He had had gout for which he had been receiving phenylbutazone (400 mg. daily, orally) for about three weeks prior to admission to the hospital. During this therapy, biweekly hemoglobin level determinations and leukocyte counts had been done, all remaining within normal limits. Physical examination on admission revealed an essentially normal healthy man in no acute distress. The red blood cell count was 3,300,000, with a hematocrit of 34%. Bleeding and clotting times were normal. A barium study of the upper gastrointestinal tract revealed a duodenal ulcer. The patient was placed on a regimen that included bed rest, sedation, administration of antispasmodics, and an appropriate diet. Discontinuance of the phenylbutazone therapy resulted in immediate clearing of the melena. A repeat barium study of the gastrointestinal tract made six weeks after admission revealed no evidence of duodenal ulceration.

SUMMARY

One case each of gastric and duodenal ulcer perforation and one of duodenal ulcer bleeding during or immediately following phenylbutazone (Butazolidin) therapy are described.

MULTIPLE GASTRIC ULCERS OCCURRING DURING PHENYLBUTAZONE THERAPY

Edward C. Raffensperger, M.D., Harrisburg, Pa.

Treatment of various arthritic conditions with phenylbutazone (Butazolidin) has recently become popular. The brochure accompanying this drug warns about the untoward reactions of nausea, edema, transitory anemia, drug rash, salt retention, and recrudesence of symptoms

Fig. 1.—Roentgenogram of the stomach made Jan. 13, 1953, showing the two ulcers and pronounced widening of the mucosal folds.

in patients "with latent peptic ulcer." Agranulocytosis has already been reported.[1] The following case is one of multiple gastric ulcers occuring during treatment with phenylbutazone, associated with prominence and apparent edema of the gastric mucosa, with dramatic healing of the ulcer and pronounced improvement in the edema after 17 days of strict ulcer management.

REPORT OF A CASE

A 70-year-old white woman was seen in this office on Jan. 15, 1953. She stated that she had never been a heavy eater and frequently had skipped meals with little or no distress. For many years she had had episodes of upper abdominal distention, with excessive belching, which seemed to be made worse by eating. For several years she had experienced intermittent arthritis, and about four weeks prior to her visit to this office, she had been given phenylbutazone and had taken about 20 tablets (200 mg. each) over the next two week period. Over this period her appetite decreased, and she lost her taste for certain foods, especially coffee. She discontinued the treatment after two weeks because the arthritis had improved. Several days after discontinuing use of the drug she began to experience severe abdominal pain associated with upper abdominal distention. The pain increased in severity and radiated into her neck bilaterally on deep inspiration. It radiated to a lesser degree to the right upper abdominal quadrant. There was associated upper abdominal soreness, and the patient was unable to obtain relief by any means. She took a laxative, which produced a black watery stool. There was no vomiting. The family and personal history were essentially negative. The patient had never been hospitalized and had never had roentgen studies.

On physical examination the patient appeared pale and elderly. Her blood pressure in the left arm was 130/80, pulse rate 80 beats per minute, and respiratory rate 20. The positive findings of physical examination were confined to the abdomen, where there was definite tenderness, with slight muscle guarding, in the left epigastrium. No mass was palpable. Results of rectal and sigmoidoscopic examinations were normal.

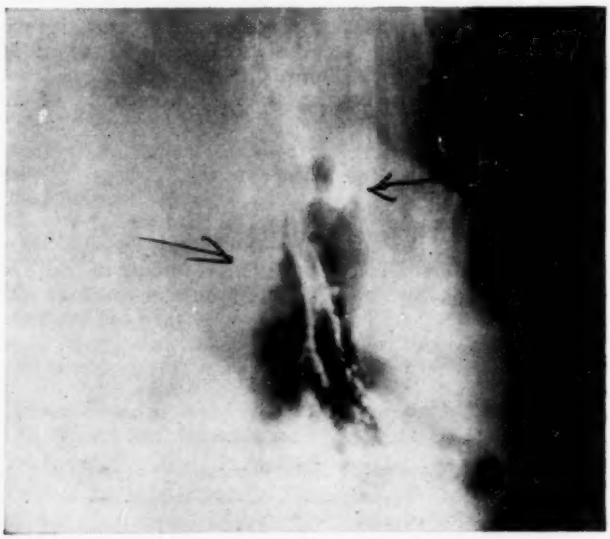

Fig. 2.—Roentgenogram made Jan. 13, 1953, in a sharp oblique position, showing the two ulcers projecting from the stomach wall.

Laboratory studies revealed a red blood cell count of 3,810,000 per cubic millimeter, with 11 gm. of hemoglobin per 100 cc. (Hayden-Hausser). The white blood cell count was 7,500 per cubic millimeter, with 66% neutrophils and 34% lymphocytes. The erythrocyte sedimentation rate was 70 mm. per hour (Westergren). Results of two urinalyses were normal. A sample of stool was 4+ for occult blood. A sample was taken from the fasting stomach and showed 28 units free and 51 units total acid and was 4+ for occult blood. The result of a Mazzini test was negative. On Jan. 13, 1953, an upper gastrointestinal roentgen examination was performed by Dr. Walter P. Bitner. An ulcer fleck 1 cm. in diameter was seen on the anterolateral wall of the upper third of the stomach, and an ulcer niche 2 cm. in diameter was seen to project 1 to 1½ cm. from the lesser curvature of the stomach at the juncture of the upper and middle thirds. Large, heavy mucosal folds were prominent throughout the body of the stomach (fig. 1 and 2).

The patient was placed on a regimen of milk, antacid, and tincture of belladonna administered hourly, and became totally asymptomatic in one week. On Jan. 23 she felt somewhat weak and passed a black, watery stool. Following this she became faint. The black stool was seen by a son who is a physician, and he believed that it was definitely melanotic. She refused

1. Kuzell, W. C., and Schaffarzick, R. W.: Phenylbutazone (Butazolidin®), Bull. Rheumat. Dis. 3:23 (Nov.) 1952. Etess, A. D., and Jacobson, A. S.: Fatality Due to Agranulocytosis Following Use of Phenylbutazone (Butazolidin®), J. A. M. A. 151:639 (Feb. 21) 1953.

hospitalization, remaining on the milk regimen, and was still asymptomatic. She was restudied on Jan. 30, 1953, at which time the roentgenologist demonstrated complete healing of the anterolateral ulcer and healing of the lesser curvature ulcer to

Fig. 3.—Roentgenogram of the stomach made Jan. 30, 1953, showing complete healing of the anterolateral ulcer and marked improvement in the mucosal folds.

about one-fourth its former size. This latter ulcer could be demonstrated only in the erect compression film. The marked widening of the mucosal folds of the body of the stomach had completely disappeared (fig. 3 and 4). The patient was maintained on a modified ulcer program and remained totally asymp-

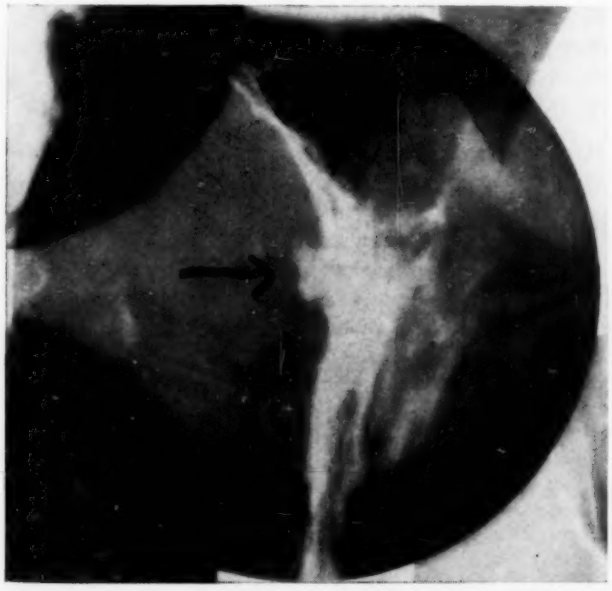

Fig. 4.—Roentgenogram made Jan. 30, 1953, with upright compression, showing the remaining defect of the lesser curvature ulcer, estimated to be one-fourth the original size.

tomatic. A roentgen follow-up examination was performed on Feb. 23, 1953, at which time no evidence of either ulcer could be demonstrated and the roentgenologist reported a completely normal stomach.

COMMENT

Several aspects of this case suggest that phenylbutazone therapy played a role in the formation of these gastric ulcers. They are as follows: (1) the occurrence of symptoms during and immediately following a course of the drug in a patient whose previous upper gastrointestinal symptoms were minor and vague; (2) the location of the ulcers in the upper third of the stomach, which is a rather unusual site for gastric ulcer; (3) the multiplicity of the ulcers; (4) the severe edema of the mucosal folds throughout the stomach; and (5) the rather rapid healing of the ulcers and the subsidence of the edema with ulcer therapy. The last factor is probably not as indicative as the others, since it is true that frequently benign gastric ulcers heal to the same degree under similar treatment.

SUMMARY

A case of multiple gastric ulcers occurring during phenylbutazone (Butazolidin) treatment is reported.

2039 N. 2nd St.

GASTRIC ULCER WITH MASSIVE HEMORRHAGE FOLLOWING USE OF PHENYLBUTAZONE

REPORT OF A CASE

Philip Krainin, M.D., New York

Phenylbutazone (Butazolidin) has currently gained general acceptance as an effective agent in the treatment of arthritis and allied rheumatic conditions. That its use is attended with the risk of clinical toxicity is now being noted with increasing frequency. Kuzell and co-workers [1] describe such toxic manifestations of phenylbutazone as rash, edema, nausea, activation of peptic ulcer, vertigo, and pain at the site of injection. The occurrence of agranulocytosis has been documented by others.[2] Stephens and co-workers [3] recorded hematemesis of serious degree in two patients, both of whom had a previous history of duodenal ulcer. The following case is one of gastric ulcer with massive hemorrhage occurring in a patient who had no previous history or symptoms of peptic ulcer. A search of the available literature reveals no similar instance of initiation of gastric ulcer with massive hemorrhage during phenylbutazone therapy.

REPORT OF A CASE

A 72-year-old white woman had been under observation for osteoarthritis of the spine, shoulders, and knees for five years. Therapy had included use of gold salts, foreign protein, and salicylates up to one year prior to the present illness and was terminated because of the generally favorable condition of the patient. In November, 1952, because of a flare-up of pain in many joints, especially in the lumbosacral spine, with radiation of pain to the hips and along the distribution of the sciatic

1. Kuzell, W. C.; Schaffarzick, R. W.; Brown, B., and Mankle, E. A.: Phenylbutazone (Butazolidin®) in Rheumatoid Arthritis and Gout, J. A. M. A. **149**: 729 (June 21) 1952.

2. Stifel, J. L., and Burnheimer, J. C.: Agranulocytosis Following Administration of Phenylbutazone (Butazolidin®), J. A. M. A. **151**: 555 (Feb. 14) 1953. Bershof, E., and Oxman, A. C.: Agranulocytosis Following Use of Phenylbutazone (Butazolidin®), J. A. M. A. **151**: 557 (Feb. 14) 1953.

3. Stephens, C. A. L., Jr., and others: Benefits and Toxicity of Phenylbutazone (Butazolidin®) in Rheumatoid Arthritis, J. A. M. A. **150**: 1084 (Nov. 15) 1952.

nerve on both sides, phenylbutazone therapy was instituted. The patient received a 200 mg. tablet four times daily. Within a week, the response was satisfactory, and the dose was decreased to a 100 mg. tablet four times daily and maintained at that level until Dec. 16, 1952. Blood cell counts were done biweekly, and all were within normal limits. Other than mild pain in the joints on movement, there were no symptoms or complaints. On the night of Dec. 16, the patient was found in her home in a state of shock. When seen at that time, she was semiconscious and her skin was cold and clammy. The blood pressure was 90/70, and the pulse was rapid and thready, 140 beats per minute. Members of the family stated that twice that day she had fainted after passing a large quantity of black stool and vomiting some dark red liquid. The patient was rushed to Lebanon Hospital and immediately on entry was given a transfusion of whole blood, followed by intravenous infusions of saline, glucose, and protein hydrolysate (Amigen) the next day. Her condition improved rapidly, and clinically the bleeding appeared to have stopped. Before the transfusion, the hemoglobin level was 7.2 gm. per 100 cc. (photoelectric colorimetric method), and the red blood cell count was 2,200,000 per cubic millimeter. Subsequently, the hemoglobin level rose to 9 gm. per 100 cc., with 3 million red blood cell count. The leukocyte count was 7,600 per cubic millimeter, with 60% polymorphonuclears, 4% band cells, and 32% lymphocytes. All other laboratory data were within normal limits. The patient was put on a modified Sippy diet and was given antacids and methantheline (Banthine). On Dec. 26, a gastrointestinal series was done, and a small niche was noted on the lesser curvature of the pars media of the stomach (fig 1). She was discharged improved on Jan. 3, 1953. A repeat gastrointestinal series was performed on Feb. 5, and neither fluoroscopically nor roentgenographically (fig. 2) was the niche visible.

Fig. 1.—Roentgenogram made Dec. 26, 1952, showing ulcer niche (arrow) in the stomach.

COMMENT

The most serious toxic effects from the use of phenylbutazone that have been reported to date are agranulocytosis and activation of preexisting peptic ulcers. Kuzell and co-workers [1] have suggested that the concurrent use of antacids in patients with known peptic ulcer might be advantageous. It would appear, however, to be too hazardous to prescribe phenylbutazone to patients known to have peptic ulcer, in view of possibility of occurrence of the potentially catastrophic complications of ulcer, such as perforation and massive hemorrhage. The better part of wisdom and discretion would clearly dictate proscription of the use of the drug in instances of known ulcer. The mechanism by which phenylbutazone reactivates an ulcer or initiates one is not clear. That there may be a local irritant effect on the mucosa of the stomach and duodenum would appear to be suggested by the frequency with which nausea and vomiting occur with its ingestion; however, activation of an ulcer has been observed even with intramuscular administration of phenylbutazone.[1]

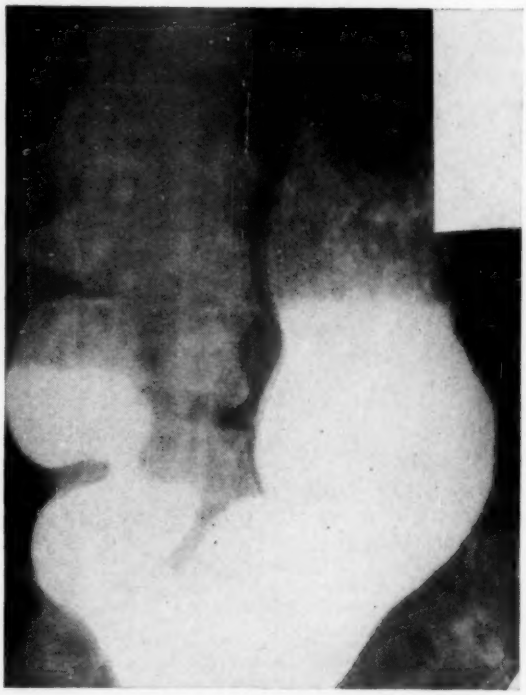

Fig. 2.—Roentgenogram of the stomach made Feb. 5, 1953, showing absence of ulcer niche.

SUMMARY AND CONCLUSIONS

A case of gastric ulcer with massive hemorrhage following therapy with phenylbutazone (Butazolidin) is reported. There was no history of previous symptoms of peptic ulcer in this patient. The gastric ulcer and its subsequent healing were demonstrated roentgenographically. The use of phenylbutazone would appear to be contraindicated in known instances of peptic ulcer, because of the likelihood of reactivation and massive hemorrhage. The possibility of its initiating ulcer formation is real.

25 Central Park West (23).

Position of Patient on Operating Table.—With the advanced techniques in anesthesiology and surgery which permit extensive operative procedures, both as to time and scope, it is imperative that the patient's position on the operating table be given careful consideration. In my estimation, every would-be surgeon should be adjusted on an operating table for a major procedure, including blood pressure cuff, intravenous fluids, and the other accessories of the operation, and forced to lie there for the necessary two or three hours without moving. Certainly if this additional surgical training were the rule, more care would be given the possibility of venous stagnation and nerve injury during the operation.—M. A. Casberg, M.D., Postoperative Care, *Surgery*, February, 1953.

AGRANULOCYTOSIS FOLLOWING PHENYLBUTAZONE (BUTAZOLIDIN) THERAPY

REPORT OF A FATAL CASE

Charles LeRoy Steinberg, M.D.
Milton G. Bohrod, M.D.
and
Andries I. Roodenburg, M.D., Rochester, N. Y.

Extensive clinical trial has shown that phenylbutazone (Butazolidin) is effective in relieving pain and stiffness in such musculoskeletal disorders as gouty arthritis, spondylitis, rheumatoid arthritis, psoriatic arthritis, osteoarthritis, fibrositis, muscular rheumatism, myositis, bursitis, sciatica, and periarthritis. Chemically, the drug is 3,5-dioxo-1,2-diphenyl-4n-butyl pyrazolidin sodium. Hence, it is related to aminopyrine (Pyramidon), which chemically is 4-dimethylamino-1-2,3-dimethylpyrazolon.

It is significant that no case of fatal agranulocytosis has been reported to date by either American or European investigators in spite of the close relationship between phenylbutazone and aminopyrine. Wilhelmi,[1] Belart,[2] Loewenhardt,[3] Fähndrich,[4] and Fischer [5] reported that the drug did not influence the blood picture to any appreciable extent. Gsell and Müller [6] reported transient granulocytopenia that did not require discontinuance of the drug. The first American report was by Kuzell, Schaffarzick, Brown and Mankle [7] and concerned the treatment of 140 patients with gout and a variety of rheumatic disorders with phenylbutazone over a period of one to five months. They found not one instance of leukopenia. A decrease in the erythrocytes and platelets occurred in a patient with monocytic leukemia who was also receiving concurrent x-ray therapy. In one patient who had a previous history of lymphosarcoma and marked hemoptasis severe hypochromic anemia developed. Steinbrocker [8] has treated over 500 patients with this drug and has encountered not a single case of agranulocytosis. He noticed that in several patients granulocytopenia developed, but the blood picture returned to normal when the medication was reduced or discontinued. Freyberg [9] has treated "several hundred cases" of musculoskeletal disorders with this drug, and has noted two cases of mild to moderate secondary anemia. He has observed no granulocytopenia or complication from leukocytic changes. He stated, "Many platelet counts failed to reveal thrombocytopenia." Norcross [10] noted a few cases of hypochromic anemia and slight thrombocytopenia in 200 cases in which phenylbutazone was used. These patients had received the drug for a period of 6 to 11 months. The following case report and necropsy findings are of unusual interest, since previous investigators do not appear to have found catastrophic damage to myelopoietic bone marrow factors.

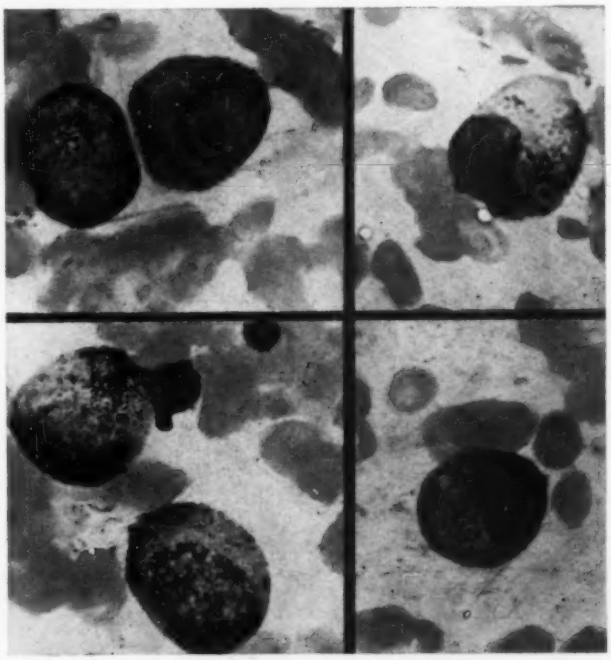

Fig. 1.—Abnormal myelocytes from bone marrow three days ante mortem. There is clumping and abnormal distribution of granules.

REPORT OF CASE

First Hospital Admission.—A 52-year-old woman was first seen at the Rochester General Hospital on June 13, 1952, at which time she gave a history of having had painful swollen stiff joints for 15 years. Painful swelling first began in the right elbow, and progressively all joints became similarly involved. She had been unable to walk since June 7, 1952, because of severe pain in her right knee joint. She had received 75 mg. of cortisone daily in divided oral doses from September, 1951, until June, 1952. Marked relief of joint symptoms first occurred, but gradually this medication offered no relief. She had received gold therapy during the winter of 1950-1951 for a period of a few months. There was no family history of blood dyscrasias. She had gained approximately 10 lb. (4.5 kg.) during the past year. An appendectomy had been performed in May, 1951, and the postoperative period was complicated by a pulmonary embolus five days after discharge. A nontoxic large colloid goiter had been removed 10 years previously.

From the Rochester General Hospital. Senior Visiting Physician and Director of the Arthritis Clinic (Dr. Steinberg); Director of Clinical Laboratories (Dr. Bohrod); and Junior Visiting Physician and Physician to the Arthritis Clinic (Dr. Roodenburg).

1. Wilhelmi, G.: Ueber die parmakologischen Eigenschaften von Irgapyrin, einem neuen Präparat aus der Pyrazolreihe, Schweiz. med. Wchnschr. **79**: 577, 1949.

2. Belart, W.: Irgapyrin als Antirheumaticum, Schweiz. med. Wchnschr. **79**: 582, 1949.

3. Loewenhardt, F.: Irgapyrin "Geigy" ein neues Antirheumatikum und Analgetikum aus der Pyrazolreihe, Deutsche med. Wchnschr. **75**: 459, 1950.

4. Fähndrich, W. H., and Junkersdorf, J.: Vergleichende Untersuchungen zur parenteralen Pyramidontherapie unter besonderer Berücksichtigung des chronischen Gelenkrheumatismus, Deutsche med. Wchnschr. **75**: 1145, 1950.

5. Fischer, H.: Über Irgapyrin, ein neues Mittel zur parenteralen Pyrazoltherapie der rheumatischen Polyarthritis, Deutsche med. Wchnschr. **76**: 50, 1951.

6. Gsell, O., and Müller, W.: Parenterale Pyramidon-Pyrazolidin-Therapie von Rheumatismus und Infekten mittels Irgapyrin, Schweiz. med. Wchnschr. **80**: 310, 1950.

7. Kuzell, W. C.; Schaffarzick, R. W.; Brown, B., and Mankle, E. A.: Phenylbutazone (Butazolidin®) in Rheumatoid Arthritis and Gout, J. A. M. A. **149**: 729 (June 21) 1952.

8. (*a*) Steinbrocker, O.; Berkowitz, S.; Ehrlich, M., and Carp, S.: Phenylbutazone Therapy of Arthritis and Other Painful Musculoskeletal Disorders, J. A. M. A. **150**: 1087 (Nov. 15) 1952. (*b*) Steinbrocker, O.: Personal communication to the authors.

9. (*a*) Freyberg, R. H.; Boyce, K. C., and Kidd, E. C.: Studies of Butazolidin and Butapyrin in Patients with Rheumatic Diseases, read before the Annual Meeting of the American Rheumatism Association, Chicago, June 6, 1952. (*b*) Freyberg, R. H.: Personal communication to the authors.

10. Norcross, B. M.: Butazolidin in the Treatment of Arthritis, read at the Regional Meeting of the American College of Physicians, Syracuse, N. Y., Oct. 3, 1952.

Physical examination revealed a well-developed, well-nourished white woman whose weight was 134½ lb. (61 kg.) and height was 5 ft. 9 in. (175 cm.). Her temperature was 98.6 F, pulse rate 94, and blood pressure 130/90 mm. Hg. The pupils reacted to light and accommodation. The teeth and posterior pharynx appeared normal. The tonsils were small. A thyroidectomy scar was present. Motion of the neck in all directions was markedly restricted. Examination of the lungs and heart revealed no abnormalities, except that the first heart sound was of poor quality. Abdominal examination revealed a low midline abdominal scar. There was ankylosis of the metacarpophalangeal joints with marked flexion deformity in these joints and with marked ulnar deviation. There was complete ankylosis of the right wrist and almost complete ankylosis of the left wrist joint. The right elbow was frozen, with a 20 degree flexion deformity. The left elbow was almost frozen in a 45 degree flexion deformity. Abduction of the right shoulder was limited to 70 degrees, and motion of both shoulders was

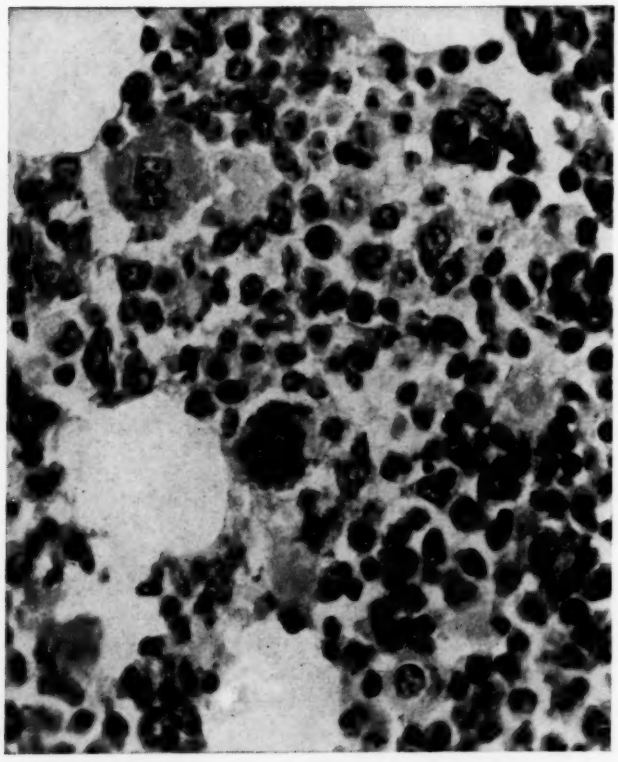

Fig. 2.—Sternal bone marrow in a high power field. Note the leukopoietic cells with poor or absent granulation and clumped nuclei. There are normal erythropoietic cells and megakaryocytes and a megakaryoblast in mitosis.

painful. There was almost no motion of the ankle joints, both being swollen. There were 15 degree flexion deformity of the right knee joint and a 10 degree deformity of the left knee joint. No abduction was possible in the right hip joint, and 45 degree abduction was present in the left hip joint. Motion of the latter joint was painful. There was marked limitation of the temporomandibular joints. Edema (2 plus) was present in the lower extremities. The deep and superficial reflexes were equal and active. The vibratory sense was intact.

Results of urinalysis were normal. The red blood cell count was 3,680,000, and the hemoglobin level was 10.6 gm. per 100 cc. (Sahli). The white blood cell count was 6,900, and the differential count 1% stab forms, 57% segmented forms, 37% lymphocytes, and 5% monocytes. The erythrocytes showed anisocytosis and poikilocytosis. The erythrocyte sedimentation rate was increased at 34 mm. per hour. The hematocrit was reduced to 35%. The blood uric acid level was 3.4 mg. per 100 cc. The blood sugar level taken three hours after a meal was 143 mg. per 100 cc. She received daily intravenous infusions of 20 units of corticotropin dissolved in 500 cc. of 5% glucose from June 13 until July 2. There was marked clinical improvement. On June 14 the nonprotein nitrogen level was 26 mg. per 100 cc. and the fasting blood sugar level was 127 mg. per 100 cc. On June 24, the fasting blood sugar level was 129 mg., and on July 1 it was 90 mg. She was also treated with a 1,600 calorie diabetic diet with a low sodium intake. There was marked clinical improvement at the hospital, and she was discharged on July 2.

Her treatment after discharge from the hospital consisted of daily warm baths, the wearing of the plaster splints at night, and the use of 20 units of long-acting corticotropin given intramuscularly daily. On July 22, the dose of corticotropin was decreased to 20 units of long-acting corticotropin intramuscularly every other day. Her joint symptoms continued to become worse under this management. She particularly complained of pain and stiffness rather than swelling of her joints. Phenylbutazone was first prescribed on Aug. 5. She received 200 mg. of this drug twice daily and one week later reported that she felt considerably improved and felt less joint pain and stiffness. The same dose of corticotropin and phenylbutazone was maintained throughout the period of treatment. On Sept. 2, a morbilliform rash, nausea and abdominal cramps developed. Administration of phenylbutazone was stopped. She had taken ferrous sulfate in a dose of 330 mg. three times daily since discharge from the hospital. On Sept. 9, one week after phenylbutazone therapy was stopped, a pressure sensation in the abdomen, general malaise, and elevation of temperature developed. A flat roentgenogram of the abdomen failed to reveal any free gas. The possibility of a silent peptic ulcer having been aggravated by phenylbutazone was considered at this point. Her condition progressively became worse during the day, and she was readmitted to the Rochester General Hospital.

Results of blood counts and blood chemistry determinations were as follows during the interval between the first and last admission: On July 8 the red blood cell count was 3,850,000 and the hemoglobin level 11.8 gm.; on July 22 they were 3,940,000 and 11 gm.; and on July 29 3,970,000 and 12.2 gm. On Aug. 12, one week after phenylbutazone therapy was started, the red blood cell count was 3,790,000 and the hemoglobin level 11.2 gm., with 5,050 white blood cells. A differential count revealed 1% juvenile forms, 1% stab forms, 67% segmented forms, 30% lymphocytes, and 1% monocytes. On Aug. 19 there were 3,480,000 red blood cells, 10.2 gm. of hemoglobin, and 3,650 white blood cells, with 1% stab forms, 67% segmented forms, 33% lymphocytes, and 1% eosinophils. The platelet count was 112,000. On Aug. 26 there were 3,620,000 red blood cells, 10.2 gm. of hemoglobin, and 4,700 white blood cells, with 67% segmented cells, 29% lymphocytes, 2% monocytes, 1% eosinophils, and 1% basophils. The platelet count was 172,000. On Sept. 2 the phenylbutazone therapy was stopped because of the presence of a morbilliform rash. The morning of Sept. 9 there were 3,660,000 red blood cells, 8 gm. of hemoglobin, and 600 white blood cells. No granulocytes were found in the peripheral blood smear. On July 29 the sedimentation rate was 30 mm. per hour, and the hematocrit was 31%. On July 8 the blood sugar level six hours after a meal was 93 mg. per 100 cc. The blood sugar level two hours after a meal on Aug. 5 was 250 mg., on Aug. 26 192 mg., and on Sept. 9 181 mg.

Second and Final Hospital Admission.—The patient was admitted to the Rochester General Hospital during the evening of Sept. 9, 1952. Her condition had deteriorated remarkably during the day. Her temperature was 103 F, pulse rate 130, and respiration rate 60. The red blood cell count was 4,380,000, hemoglobin level 9 gm., and white cell count 650. No granulocytes were seen. She also showed a marked icteric appearance, and urinalysis revealed a positive test for bile and urobilinogen. She was given five transfusions each of 500 cc. of blood from the time of admission until death at 3 a. m. Sept. 12, 1952. She was also given 25 units of corticotropin intramuscularly every six hours. No granulocytes were seen on three different occasions during this final admission to the

hospital. On the evening of Sept. 11, 1952, her red blood cell count was 4,960,000, the hemoglobin 14.5 gm., and the white cell count 1,100. No granulocytes were seen.

Bone marrow aspiration on Sept. 9, 1952, revealed the following findings: The marrow was only moderately cellular. Erythropoietic cells were present in good number and appeared to be completely normal. Bone marrow giant cells were normal in number and in appearance. Platelets were present in abundance. There were almost no segmented or band forms of neutrophils, nor were there normal-appearing myelocytes, except in small numbers. Most of the myeloid cells had rather clumped or even irregular or poorly defined nuclei. The cytoplasm was basophilic, often cloudy, and sometimes vacuolated. Granules were either absent from obviously differentiated cells, or, when present, were in small number or clumped together. Frequently they formed round or elliptical masses in part of the cytoplasm leaving the rest free from granules. No eosinophile cells were encountered. Myeloblasts were present, but only in the usual small numbers. The diagnosis was maturation arrest of the bone marrow, with abnormal granulation of the myelocytes.

On Sept. 10 the white blood cell count was 1,400, and no granulocytes were seen. Other laboratory data were as follows: Sept. 10, 1952, blood sodium level 135 mEq. and blood potassium level 3.1 mEq. The nonprotein nitrogen level was 25 mg. per 100 cc., and the blood sugar level was 113 mg. per 100 cc. On Sept. 10, 1952, the patient began to fibrillate and she was digitalized, with return of normal rhythm. A portable chest film on Sept. 10, 1952, revealed bilateral bronchial pneumonia. She died at 3 a. m. Sept. 12, 1952.

Necropsy Report.—Gross examination of all organs and tissues except the joints, lungs, and bone marrow revealed no abnormalities. The left lung weighed 1,030 gm. and the right lung 700 gm. The surface of the left lung was smooth and was rather dark in color. This was particularly true of the lower lobe, which was somewhat dark bluish-red. Scattered over the surface, just beneath the pleura, were tiny grey nodules, perhaps 1 mm. in diameter. These were silghtly elevated and felt sandy. The cut surface of the lower lobes showed it to be almost dark red and quite firm. There were a few more pink areas scattered throughout. The upper lobe was mostly pink in color and somewhat crepitant. Scattered throughout were dark red areas of increased density. The upper lobe contained a large amount of frothy fluid that could be readily expressed on pressure. The bronchi were clear. The vessels appeared normal.

Microscopic Examination.—Heart: All sections of the heart examined showed marked changes on microscopic examination. The principal changes were in the myocardium; there were a few changes in the endocardium, but the epicardium seemed to be completely normal.

The myocardial changes were seen around the intramyocardial branches of the coronary artery. They varied considerably in form, but they could be arranged in a series from the least to the most severe, and will be so described. In all instances, the perivascular area was very greatly enlarged and extended into and separated adjacent muscle fibers. The simplest changes, apparently, consisted of an edematous loosening of the connective tissues, but only a few areas were seen in which this was the only change. The additional changes consisted of cellular infiltration and necrotization. Sometimes each of these were present alone, and sometimes they were present together. In the necrotizing process the first stage seemed to be a marked swelling and increased eosinophilia of the collagen fibrils. In very few areas this was the only change, but in most of them a small amount of the lesion, at least, was already definitely necrotic. The result was a nodular lesion surrounded by edematous connective tissue. In some nodules the amount of necrosis was very large, and in these instances a delicate network of actual fibrin could be seen. The cellular infiltrates were generally in close association with the branches of the coronary artery. Frequently they were eccentric, involving only one side of the vessel. In the larger lesions, they surrounded the entire vessel. Some cells were elongated swollen fibroblasts; oftener they were round and histiocyte-like. Frequently the nuclei were somewhat lobulated, and occasionally they were rather bizarre and looked very much like the cells seen in an Aschoff nodule. The walls of the vessels themselves showed less change.

Lungs: The lung changes were marked and varied in different places. On the pleura there were a few deposits of fibrin, with only a very few cells near the deposits. There was very severe edema in many places, the alveoli being filled with rather deeply staining protein material. Often this edema fluid contained large histiocytes; other alveoli contained similar histiocytes with little or no edema fluid. In many places the edema fluid contained red blood cells, and in some places there was very marked hemorrhage into the alveoli. Scattered through the lung there were nodular accumulations of histiocytes with large, often partly lobulated and indented, nuclei. In the centers of some of these were tiny vessels that were partly, or in a few cases completely, replaced by necrotic

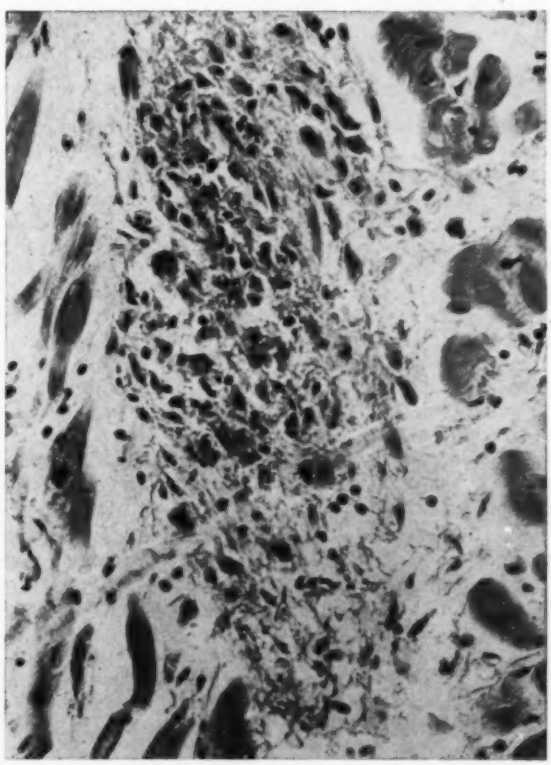

Fig. 3.—Section of the myocardium showing a granuloma with swelling and fibrinoid degeneration of the collagen network.

fibrinoid material. Most of the bronchi were surrounded by a mild infiltration of lymphocytes and rather prominent giant cells of the Langhans or foreign body type. In a few instances these formed small microgranulomas in the wall. There were no changes in the mucosa.

In several areas there were large colonies of bacteria (cocci). These were surrounded by large cellular accumulations and edema. The cells were very markedly broken up and vacuolated, so that often their identity could not be determined exactly. Among them, however, there were some few neutrophils and eosinophils and many large histiocytes-like cells. Both the neutrophils and the histiocytes contained many ingested cocci. Except as described in the center of the granuloma-like lesion above, the arterioles showed no changes. The larger arteries were normal.

Spleen: Malpighian corpuscles were small and far apart. The central arterioles were often hyaline-necrotic. In the periphery of the corpuscles and in the splenic pulp there were fair numbers of plasma cells, occasionally very large ones, and a few eosinophils. The splenic pulp was very hemorrhagic, and its cellularity was decreased. There was no fibrosis.

Adrenal Glands: The adrenal cortex showed several types of alteration. For the most part, the outer glomerulosa was normal but somewhat thin. Beneath this, there were islands of degeneration in which the adrenal cells were replaced by empty spaces or by fluid. In the periphery of these areas, the adrenal cells tended to be rather poorly defined and often vacuolated. In many areas the cords of adrenal cells were so transformed that they formed pseudoacini or larger alveoli. In general, the adrenal cells around these lumen-like spaces were compressed. Many of the spaces contained one or more small cells with nuclei still remaining, which could have been residual adrenal cells. Careful examination disclosed changes that were probably the precursors of these gland-like spaces. In the earlier stages these consisted of the presence of highly eosinophil colloid-like globules within the cytoplasm. In some areas of the cortex the glandular appearance was quite marked.

Bone Marrow: The bone marrow of the femur was largely fatty. Only in a few places were a few bone marrow cells still to be made out. These consisted partly of erythropoietic cells and partly of larger probably leukopoietic cells, which were difficult to identify and which are described more fully as they occurred in the rib and vertebrae.

Vertebral and Rib Marrow: The bone marrow in the vertebrae and ribs was very cellular. The erythropoietic cells were about normally abundant and appeared to be normal. Megakaryocytes were quite numerous and of normal appearance. The remainder of the cells, which were probably leukopoietic in origin, did not, however, resemble normal leukopoietic bone marrow. The cells were closely packed together, and their borders were difficult to distinguish. The chromatin was in clumps, sometimes almost like that of plasma cells but never very characteristic. The cytoplasm seemed to fuse with that of adjacent cells and was quite cloudy and basophilic. In several areas the abnormal myeloid cells formed nodules of almost syncytial character. In some of the cells normal neutrophile granules could be made out, but in many, granules were faint or clumped, and occasionally a few intensely basophilic granules were scattered through the same cell that contained neutrophil granules. In many areas eosinophile myelocytes were abundant. Segmented or band form cells were rare.

Anatomic Diagnosis.—The anatomic diagnosis was (1) agranulocytosis (clinical); (2) hyperplasia with maturation arrest of the bone marrow; (3) acute vasculitis of the myocardium with Aschoff-like nodules; (4) microgranulomas and vasculitis in the lungs; (5) pulmonary edema and hyperemia (anaphylactoid ?); (6) bilateral bronchopneumonia that was confluent in lower lobe of the left lung; (7) multiple abscesses in the lungs; (8) rheumatoid arthritis (clinical); (9) cytolysis of the adrenals, with pseudoglandular formation; (10) adenoma of the adrenal cortex; (11) cerebral edema; and (12) congestion of liver and spleen.

COMMENT

The close relationship of phenylbutazone to aminopyrine suggests the possibility of its damaging granulocytes. Figure 1 shows abnormal granulocytes in the myelocytic series of the bone marrow in this case. Granules form round or elliptical masses in a part of the cytoplasm, leaving parts free from granules. Jaffé [11] described identical changes in 1933 in nine cases of agranulocytosis. The etiological factors in his cases were as follows: two patients had prolonged Streptococcus viridans septicemia, two patients had received antisyphilitic treatment, and in five cases the condition was idiopathic. His report was made before knowledge of the catastrophic effects of aminopyrine was widespread, and since five patients had severe joint and muscle pains, some may have received aminopyrine. Figure 2 shows leukopoietic cells with poor or absent granulation and clumped nuclei. There were many granulomas, both old and recent, within the myocardium. Figure 3 shows a granuloma of the myocardium, with swelling and fibrinoid degeneration of the collagen network. The latter is found in patients who have died as result of sulfonamid poisoning. Pathological findings similar to those present in the kidneys of patients who die of sulfonamid poisoning were not present in our patient.

SUMMARY

A 52-year-old white woman who had rheumatoid arthritis over a 15 year period and who received 400 mg. of phenylbutazone (Butazolidin) daily for 26 days died as a result of agranulocytosis. The death occurred in spite of the fact that she was receiving 20 U. S. P. units of long-acting corticotropin intramuscularly every other day, and in spite of the fact that an initial white blood count drop was followed the subsequent week by a rise in the total leukocytes while phenylbutazone therapy was continued. The same leukopenic blood picture at times is encountered in patients with the so-called Felty's syndrome in whom hypersplenism develops. In these cases, however, the course is not rapidly fatal and in these cases maturation arrest of the bone marrow granulocytes does not develop. The widespread changes present in the myocardium of our patient are identical to the changes found in sulfonamid poisoning. Many hundreds of patients suffering from musculoskeletal disorders have received phenylbutazone without such a dire outcome. This case indicates, however, the probability that phenylbutazone may arrest the maturation of granulocytes in a manner similar to that of its chemical ally aminopyrine.

ADDENDUM

Since the preparation of this report, another fatal case of agranulocytosis following phenylbutazone therapy has been reported.[12]

Medical Arts Bldg., 277 Alexander St. (Dr. Steinberg).

11. Jaffé, R. H.: Bone Marrow in Agranulocytosis (Pernicious Leukopenia), Arch. Path. **16**: 611 (Nov.) 1933.

12. Etess, A. D., and Jacobson, A. S.: Fatality Due to Agranulocytosis Following Use of Phenylbutazone (Butazolidin®), J. A. M. A. **151**: 639 (Feb. 21) 1953.

Blastomycosis of the Spine.—Blastomycosis [of the spine] mimics tuberculosis very closely. . . . Blastomycosis invariably produces abnormalities in the disc space and marked narrowing is the usual change. Also it produces changes in one or more spinal segments and vertebral body collapse is common. Bone destruction is predominant and there is little proliferative reaction for relatively long periods of time. As in tuberculosis, the infection spreads from segment to segment by dissecting under the spinal ligaments, especially anteriorly. Because of the latter mode of extension the disease frequently results in prominent concavities of the anterior vertebral borders, a finding so characteristic of tuberculous spondylitis. Also, this manner of spread accounts for the "skip" involvement of segments for the dissecting pus may by-pass one or more vertebrae only to involve others. Rib destruction either by direct extension or by pressure erosion is a frequent finding. Here, again, there is a tendency for very slow bone proliferation and sclerosis. Paravertebral infection almost always accompanies the bone disease and the roentgen picture is that of either a fusiform or globular shadow at single or multiple levels. The abscess may be unilateral, but most often is bilateral. In the lumbar region spread into the psoas area is common and is associated with the usual roentgen finding of psoas shadow bulging.—G. J. Baylin, M.D., and J. M. Wear, M.D., Blastomycosis and Actinomycosis of the Spine, *The American Journal of Roentgenology, Radium Therapy and Nuclear Medicine*, March, 1953.

PARAPLEGIA AS A COMPLICATION OF GOUT

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Since the disease was first recognized as a clinical entity by Sydenham in the 17th century, gout has attracted considerable attention. The protean nature of the disease has been described in detail by numerous observers. Contemporary descriptions emphasize that the basic process of the disease is the deposition of sodium urate in the mesenchymal tissues of the body. From the wealth of available literature, it appears that these acicular crystals are deposited in all but a few tissues. The commoner articular sites in which they are deposited include the joints of the feet, ankles, and wrists. Less commonly involved are the elbows, knees, shoulders, hips, sacroiliac, and sternoclavicular joints and the articulations of the spine. Abarticular tophi are classically found in the ears, the prepatellar and olecranon bursae, and the tendons of the fingers, wrists, toes, ankles, and heels. Deposition in the interstitial tissue of the kidney is not unusual. Uncommon sites for tophaceous deposits are the aorta, myocardium, and aortic valves; the prepuce of the penis, and the corpora cavernosum; the tarsal plates, cornea, and sclera of the eye; and the tongue, epiglottis, vocal cords, and arytenoid cartilages. Occasionally the crystals have been recovered from the sputum of gouty patients.[1]

It has long been recognized that the central nervous system has seldom been affected by gout. Indeed Bauer [2] has stated that the isolated reports of urates in the central nervous system and its coverings have never been verified. We are in complete accord with this statement. We report this unique case primarily to illustrate that on rare occasions the central nervous system can suffer severe damage from the deposition of urate crystals in contiguous structures.

REPORT OF A CASE

A 44-year-old white man was admitted to the hospital on April 29, 1952. He complained chiefly of paralysis of both legs. Progressive weakness of both lower extremities had developed insidiously in November, 1951, and was accompanied by severe, aching pain in the middorsal region. Two months prior to admission the patient's legs became completely paralyzed. For the past three months, he had experienced difficulty in initiating micturition, and he had suffered chronic constipation for two months. For two weeks immediately preceding his admission he had been a patient at another hospital, where the diagnosis of spinal cord tumor had been made.

In 1940 he experienced his first attack of gout. The metatarsophalangeal joint of the left great toe was the site of the initial involvement. In the ensuing years, both ankles, elbows, and the right great toe were affected. Exacerbations were frequent and debilitating and sometimes made him bedfast for two or three months. Remissions seldom lasted more than six months. He believed that his attacks of acute gouty arthritis were frequently precipitated by alcoholic excesses. For the past 15 years he had regularly consumed large quantities of alcohol, about one-half bottle of whiskey and 5 to 10 glasses of beer per day. Sometimes, because of the agony of acute gout and on the advice of his physician, he would abstain for a few weeks. In 1945 painless masses appeared in the olecranon region of both elbows (fig. 1). These have continued to increase in size. Systemic review was essentially negative. No family history of gout or other relevant diseases could be elicited.

Physical examination showed a muscular, somewhat obese white man, who did not appear to be acutely ill. Temperature, pulse, and respirations were normal. The blood pressure was 140/85 mm. Hg. The heart, lungs, and abdomen were normal. The thyroid gland was not palpably enlarged. There was no local or generalized lymph node enlargement. The helix of each ear contained a single tophus. In the region of the right olecranon process, there were two lobulated tophi. The larger was approximately 14 by 14 by 10 cm., and the smaller measured 8 by 8 by 8 cm. Just distal to the left olecranon was a similar roughly oval mass, measuring 8 by 5 by 3 cm. On the dorsum of each great toe was a smaller ulcerating tophus, measuring approximately 3 by 3 by 1 cm.

Fig. 1.—Two large lobulated tophi on right elbow of patient in case reported.

Neurological examination revealed several abnormalities. Pinprick, fine touch, and temperature sensation were diminished in the lower half of the trunk and the lower extremities. The line of demarcation was approximately 3 in. (7.6 cm.) below the umbilicus. Position sense was absent, and vibratory sensation was decreased in both lower extremities. Marked motor weakness was present in the lower extremities. The knee and ankle jerks were hyperactive, and there was bilateral ankle clonus. The lower abdominal and cremasteric reflexes were absent. Babinski's sign was elicited bilaterally.

Laboratory studies of the urine showed specific gravity 1.020 and pH 4.5. Tests for sugar and albumin were negative. Microscopic examination of the urine sediment showed a few white blood cells. A 24-hour specimen of urine showed an excretion of 614 mg. of uric acid. Blood studies showed hemoglobin 12 gm., red blood cells 4.1 million per cubic millimeter, and white blood cells 9,800, with a differential count of 64% polymorphonuclear

From the Department of Neurosurgery, Montefiore Hospital.

1. Neuwirth, E.: Milestones in the Diagnosis and Treatment of Gout, Arch. Int. Med. **72**: 377-387 (Sept.) 1943.

2. Bauer, W.: Medical Progress: The Diagnosis of Gout, New England J. Med. **229**: 583-590 (Oct. 7) 1943.

leukocytes, 32% lymphocytes, 1% monocytes, and 3% eosinophils. Blood chemistry values per 100 cc. of blood were 84 mg. of glucose, 33 mg. of nonprotein nitrogen, 10.7 mg. of uric acid, 10.5 mg. of calcium, 4 mg. of phosphorus, 7.8 gm. of total protein, 4.2 gm. of albumin, and 3.6 gm. of globulin. Serologic tests for syphilis were negative. Kidney function tests showed that the urea clearance test was 98% of normal, and that phenolsulfonphthalein was excreted at a rate of 71% in two hours, of which 43% was excreted in the first 30 minutes following injection. Spinal fluid showed an initial pressure of 100 mm. of water and was crystal clear and colorless. There was no response to jugular compression. The fluid contained 2 white blood cells and 11 red blood cells per cubic millimeter, 690 mg. of chlorides, 60 mg. of glucose, and 320 mg. of total protein per 100 cc. The result of a colloidal gold test was 0001112200. Spinal fluid serologic test for syphilis was negative. Roentgenograms of the cervical, thoracic, and lumbosacral portions of the spine showed minimal osteoarthritis. A myelogram revealed a complete block at the level of the 11th thoracic vertebra (fig. 2).

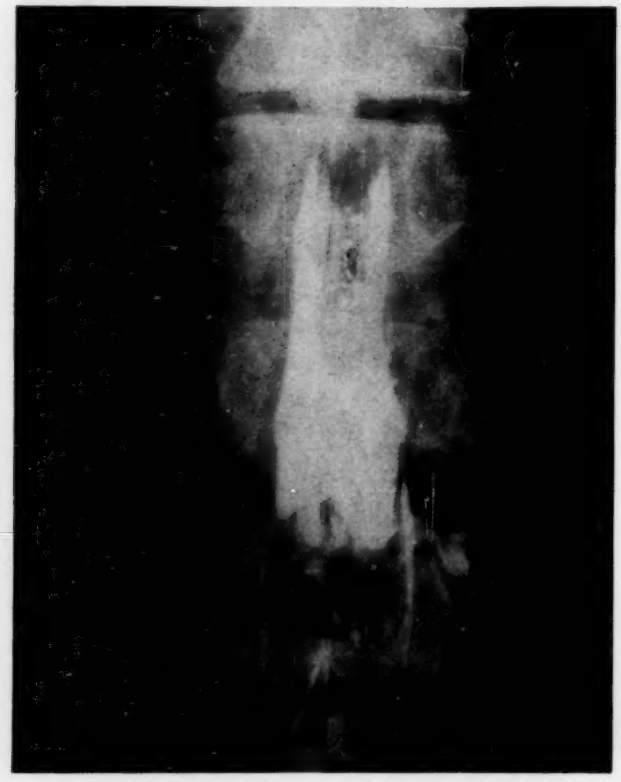

Fig. 2.—Myelogram showing complete block at the level of the 11th thoracic vertebra.

On May 9, 1952, the patient underwent surgery. As soon as the spinous processes and laminas were removed in the course of exposing the spinal cord, an unusual phenomenon was observed. Occupying the spinal canal and displacing the cord dorsolaterally was an irregular mass of friable, white, chalky material. This mass extended from the upper border of the body of the 9th thoracic vertebra to the middle of the body of the 11th thoracic vertebra. Microscopic and chemical examinations of this material proved that it consisted of sodium urate crystals. Most of this material was removed without difficulty. The dura was then opened widely, revealing the cord, which appeared normal above the block but somewhat atrophic below it. The introduction of catheters above and below the obstruction showed that no other block of the thecal space existed. The dura was left open for decompression purposes. During the postoperative period, the patient was placed on a low purine diet and probenecid (benemid®) therapy was instituted. There were no attacks of acute gouty arthritis, and function slowly returned to the affected limbs. The patient was discharged improved on June 21, 1952.

SUMMARY

The myriad complications of gout are reviewed. A case of paraplegia caused by sodium urate deposits in the spinal canal is reported.

TOXIC HEPATITIS WITH JAUNDICE OCCURRING IN A PATIENT TREATED WITH ISONIAZID

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and
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Since experimental evidence shows that lethal doses of isoniazid (isonicotinic acid hydrazide) result in liver damage,[1] it is to be expected that one of the possible clinical observations might be evidence of this condition in patients treated with this drug. Liver function studies have been included in the clinical observation of many hundreds of such patients.[2] So far, studies of patients on dosage schedules in use at this time, from 2 to 8 mg. per kilogram of body weight,[3] have failed to reveal demonstrable evidence of toxicity to the liver, and no reports of the occurrence of jaundice have been presented. The following case report may therefore be significant.

REPORT OF A CASE

The patient was a 46-year-old man whose chief complaint was of jaundice. His history included right rib resection for empyema in 1927 and, after left pleural effusion was diagnosed in 1932, the left side of the chest had been aspirated 26 times during the following four and a half years. No positive sputums were found at the time of diagnosis, and the fluid aspirated was never shown to contain tubercle bacilli. For the 13 years preceding admission, the patient had worked as a salesman in Phoenix, Ariz., and had been in good health. His habits included smoking in moderation and highball daily before dinner.

On Feb. 23, 1950, hemoptysis occurred and sputum examination revealed tubercle bacilli. A roentgenogram showed small cavities at the right apex. One month after beginning the treatment consisting of bed rest, streptomycin, and *p*-aminosalicylic acid, a syndrome developed that was characterized by a temperature that gradually reached 103 F, severe headache, and mild nausea and vomiting. Spinal puncture was negative. Four days after the syndrome appeared, the medicaments were discontinued, and the symptoms began to disappear. Test doses of *p*-aminosalicylic acid produced prompt recurrence of the syndrome, while streptomycin therapy was continued without any evidence of untoward reactions. Intermittently the sputum was positive, and pneumoperitoneum was maintained for about a year. The general condition of the patient remained good; his weight was about 160 lb. (72.6 kg.); and his height was 69 in. (27.6 cm.).

On April 8, 1952, isoniazid (rimifon®) therapy was begun, with a total of 150 mg. given in three doses daily. Pain in the right lower costal region was noted on May 19. Constipation was present from the time the patient began taking the drug. Mild nausea developed on May 23, as did headaches, lighter colored stools, and a macular, dark, reddish-brown rash over the trunk. The urine had been noted to be dark. Jaundice was observed by the patient on May 25; isoniazid therapy was discontinued on May 27, and the patient was readmitted to St. Luke's Hospital for Tuberculosis on May 29. At the time of admis-

1. Benson, W. M.; Stefko, P. L., and Roe, M. D.: Pharmacologic and Toxicologic Observations of Hydrazine Derivatives of Isonicotinic Acid (Rimifon, Marsilid), Am. Rev. Tuberc. **65**: 376 (April) 1952.
2. Pfeutze, Carl: Personal communication to the authors.
3. Selikoff, I. J., and Robitzek, E. H.: Tuberculosis Chemotherapy with Hydrazine Derivatives of Isonicotinic Acid, Dis. of Chest **21**: 385 (April) 1952.

sion, he had been unable to retain solid food for two days and he was vomiting occasionally. He had had no fever. Blood cell counts, urinalysis, and cephalin flocculation tests had been made before isoniazid therapy was begun, and they were repeated every two weeks. The hemoglobin fell from 17 to 15.5 gm. per 100 cc. (Sahli method) the day isoniazid therapy was discontinued. Urinalysis reports remained unchanged, except that a trace of albumin was found. The cephalin flocculation test, which had been negative in three tests, became 1+ when jaundice appeared. All tests were performed by the same technician.

Physical examination on admission, May 29, showed a fairly well-nourished man weighing 152 lb. (68.9 kg.), a loss of 8 lb. (3.6 kg.) in 10 days. The skin and scleras were deeply jaundiced. The temperature was 97.8 F, pulse 100, respiration 24, and blood pressure 120/80 mm. Hg. The heart sounds were normal. A moderate degree of pneumoperitoneum was present, and there was considerable abdominal distention, although it was not entirely due to the pneumoperitoneum. The skin rash was pronounced, with irregularly confluent macular patches of reddish-brown color over the trunk and volar arm surfaces. A roentgenogram of the chest revealed an increase in the area of "motheaten density" in the right apex. A flat plate roentgenogram of the gallbladder failed to reveal any abnormality.

On admission blood studies showed thymol turbidity of 2 units per 100 cc. (MacLagen); van den Berg 0.219 mg. indirect and 20.46 mg. direct; icterus index 50; total protein 5.1 gm., globulin 1.9 gm., and albumin 3.2 gm. per 100 cc.; and albumin-globulin ratio 1.6:1. Hubert's test for bilirubin in the feces was negative. Coagulation time by the capillary tube method was four minutes. Bleeding time by the Duke method was 2½ minutes (normal one to three minutes). The leukocyte count was 10,500, with band cells 2%, segmented cells 60%, lymphocytes 31%, eosinophils 2%, basophils 3%, and monocytes 2%. The erythrocyte count was 4,070,00, mean corpuscular hemoglobin concentration 35%, and hemoglobin 14.4 gm. The sedimentation rate was 10 mm. in 15 minutes, 21 mm. in 30 minutes, 23 mm. in 45 minutes, and 24 mm. in 60 minutes. The prothrombin time was 14 seconds; the normal control was 15 seconds. Cholestrol was 450 mg. per 100 cc., and alkaline phosphatase was 7 units (Bodansky). Urine showed no increase of urobilinogen. Sputum tests showed 30 acid-fast bacilli per field. The cephalin flocculation test was 1+. The urine was negative; specific gravity was 1.014; there was an acid reaction; and no albumin, sugar, or pus cells were present. There were 8 to 10 white blood cells.

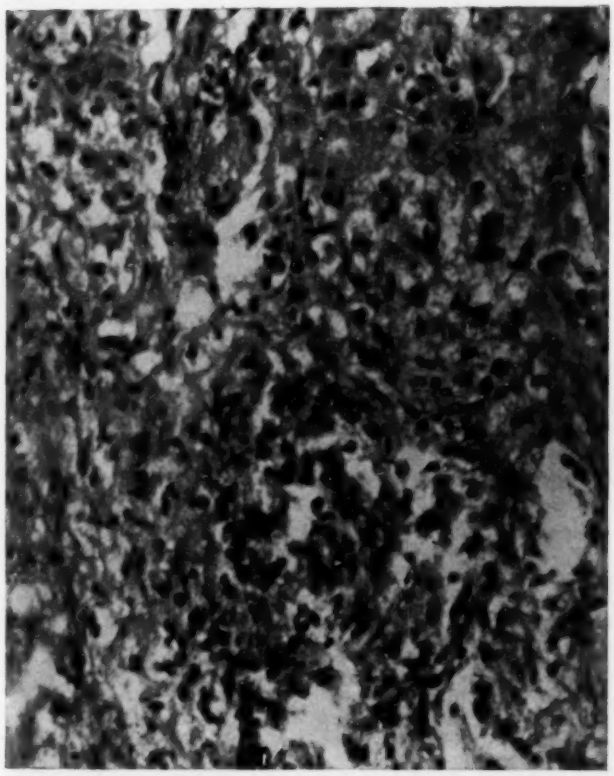

Fig. 1.—Photomicrograph of needle biopsy specimen of liver showing toxic hepatitis (low power, × 75).

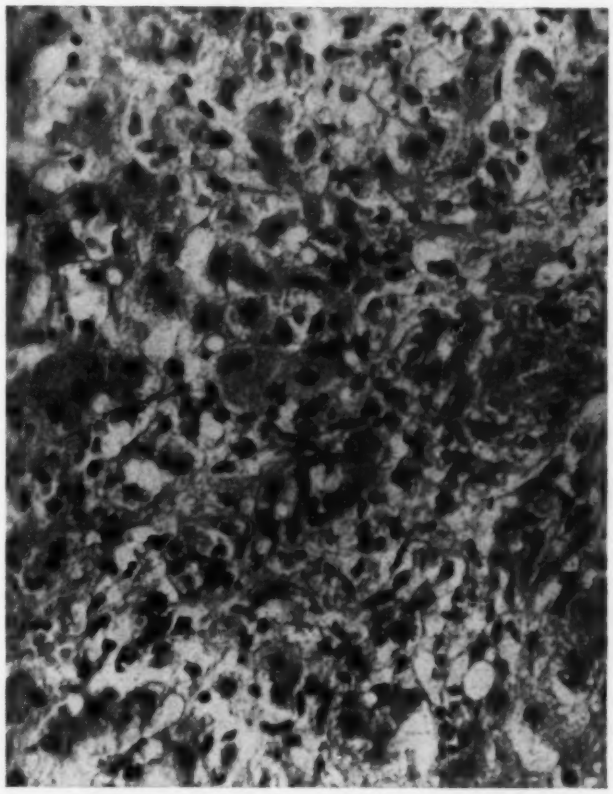

Fig. 2.—Photomicrograph of needle biopsy specimen of liver showing toxic hepatitis (high power, × 150).

A needle biopsy of the liver was performed on May 30, 1952. The Turkel needle used penetrated the liver, encountering only slight resistance. The pathologist's report stated that, in many areas embedded in the blood clots, there were groups of liver lobules showing distinctly the portal triad and central veins of the surrounding lobules. The changes found were characterized by an increase of connective tissue in the periportal zone, associated with what appeared to be reduplication of small bile ducts and, in many areas, an indistinct line between the outer portion of the liver lobule and the connective tissue of the portal triad. In addition to this, there was a diffuse inflammation composed of leukocytes and lymphocytes with scattered eosinophils. This inflammatory infiltrate frequently extended into and between the lobules. It was more marked than that found in cirrhosis of the liver. Practically all of the liver cells showed vacuolation varying from small to large vacuoles that completely filled the cytoplasm of the cells. No evidence of bile stasis was found, and there was apparently an acute hepatitis superimposed on a relatively mild degree of cirrhosis of the liver.

While the patient was in the hospital, nausea and vomiting persisted for two days and then gradually receded and disappeared on the fourth day. For the same two days, he was given plasma, amino acids, and glucose intravenously, but these were replaced by a high protein diet as soon as it was tolerated. The jaundice began to fade on the third day, and the stools became darker. The seventh day after admission, repeat of the blood cell count showed leukocytes 8,950, with segmented cells 55%, lymphocytes 3%, band cells 2%, eosinophils 3%, basophils 4%, and no monocytes. The hemoglobin was 14.1 gm. The red blood cell count was 4,430,00. The icterus index had dropped to 24 units. On June 14, 1952, there was still a faint jaundice, the rash was fading, and the icterus index was 7 units.

COMMENT

The possibility that the cause of the hepatitis in this patient was isoniazid (rimifon®) cannot be excluded. Jaundice has not previously been reported as a clinical complication of treatment with this drug. If this is a toxic effect of isoniazid, it seems likely that previous liver damage was also an important factor. The moderate degree of cirrhosis found in this patient may have had its inception with the empyema or with the pleural effusion. A reduction in functioning liver cells may have concentrated the effect of the drug in such a way as to produce toxic damage. The probability that this patient previously had an extreme sensitivity to *p*-aminosalicylic acid can be related to his apparent reaction to isoniazid. The occurrence of a skin rash tends to strengthen the conclusion that this toxic hepatitis was due to the drug, although skin lesions per se have been rare. Certainly this case does not appreciably limit the usefulness of isoniazid.

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FATAL HEMOPTYSIS FROM PULMONARY ARTERIOVENOUS FISTULA

REPORT OF A CASE IN A PATIENT WITH HEREDITARY HEMORRHAGIC TELANGIECTASIA

Harold L. Israel, M.D.
and
Edward Gosfield Jr., M.D., Philadelphia

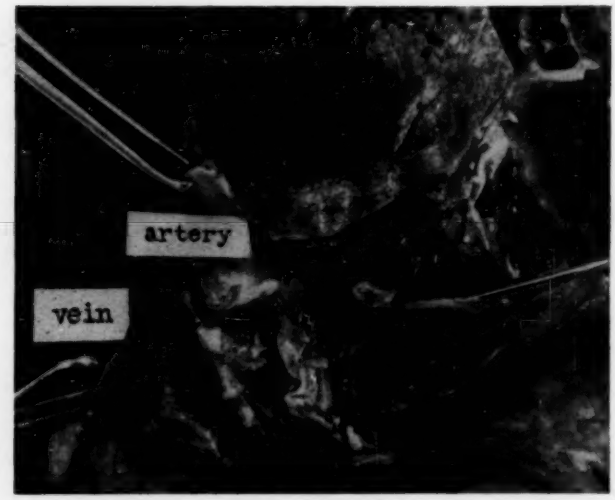
Pulmonary arteriovenous fistulas are being recognized with increasing frequency, especially in patients with hereditary hemorrhagic telangiectasia. With few exceptions, these patients have exhibited the characteristic syndrome of cyanosis, dyspnea, polycythemia, and clubbed fingers. Pulmonary resection has been successfully employed for relief of these manifestations. Hemoptysis has been noted in many of the reported cases, and the threat of fatal pulmonary hemorrhage has been repeatedly emphasized. Since a review of 77 reported cases reveals only a single death from hemoptysis,[1] the danger of hemorrhage and the importance of surgical intervention deserve further documentation. The case of pulmonary arteriovenous fistula reported here illustrates the hazard of hemorrhage as well as the desirability of surgical therapy even when symptoms are minimal.

REPORT OF A CASE

The patient, a 41-year-old white housewife, was first seen on April 19, 1949, after recent hemoptysis. Three weeks earlier, at the time of her menstrual period, the patient had expectorated frothy, bloody sputum for the first time. This had recurred during the next three days, but had not been present since then. There had been no associated symptoms of chest pain, dyspnea, or pronounced cough. As a result of the hemoptysis, she had her first chest x-ray examination. The roentgenologist recognized a rounded mass in the left lower lobe as indicative of a pulmonary hemangioma. The patient was then referred for medical evaluation and recommendations concerning therapy.

Recurrent epistaxis had been a major family disorder; it had been present in the patient's mother and maternal grandmother. They had died at the ages of 57 and 70, respectively, of causes unknown to the patient. The patient had developed normally without complaints until the age of 18, when she had experienced moderate epistaxis. This had recurred almost daily thereafter, and she was only rarely free of epistaxis for as long as a week. During certain episodes she bled profusely. The diagnosis of hereditary hemorrhagic telangiectasia had been made. A variety of therapeutic measures, including local radium application and rutin, had been used without sustained benefit. There had been no respiratory symptoms except a chronic dry, tickling cough.

Physical examination on April 19, 1949, revealed a well-developed, well-nourished woman in no apparent distress. She did not appear plethoric or anemic or definitely cyanotic. Small red angiomas were scattered over the skin of the trunk and extremities. Two large dilated angiomas were noted, one on the lower lip and one on the dorsum of the tongue. The tongue appeared dusky in hue. The nasal septum had been perforated as a result of radium treatment. The heart was hyperactive, with a regular sinus rhythm and rate of 88. No murmurs were heard. The blood pressure was 150/90 mm. Hg. Examination of the lungs gave normal results; no murmur was audible over the lower left lung. The remainder of the examination revealed no abnormalities; clubbing of fingers and toes was not evident. Fluoroscopic examination of the chest revealed a rounded mass 6 cm. in diameter near the posterolateral aspect of the heart. The mass pulsated, but whether the pulsation was transmitted from the heart or whether the mass itself was pulsating could not be determined with certainty. When the patient executed the Valsalva maneuver, the mass diminished in size. The lung fields were otherwise clear, and the cardiac silhouette was normal in size and contour.



Autopsy specimen from patient in case reported. The artery and vein communicate at the right to form the large loculated fistula.

Laboratory studies showed that the hemoglobin was 13.6 gm. per 100 cc. and the hematocrit 48%. The arterial oxygen saturation was 84.9%; this rose to 94.3% after breathing of 100% oxygen for 30 minutes. There was no dyspnea after four minutes of treadmill exercise, although the arterial oxygen saturation fell slightly. The circulation time from arm to ear was nine seconds (normal 14 seconds) and from lung to ear it was five seconds (normal five to eight seconds).

Studies of ventilatory function showed little impairment. The resting minute volume was significantly increased to 12.6 liters per minute (normal 8 liters), and arterial carbon dioxide content was diminished to 38.5 vol. % (normal range for whole blood from 46 to 52 vol. %). The vital capacity (2,530 cc.) and total capacity (3,746 cc.) were normal; the residual capacity was slightly increased (32.5% of the total). The nitrogen elimi-

From the Department of Medicine, Graduate Hospital, University of Pennsylvania.

Dr. Julius H. Comroe Jr., of the Graduate School of Medicine, carried out respiratory function studies.

1. Rodes, C. B.: Cavernous Hemangiomas of Lung with Secondary Polycythemia, J. A. M. A. 110: 1914 (June 4) 1938.

nation rate was normal, indicating that alveolar gas mixing was uniform. The normal ventilatory dynamics and the absence of carbon dioxide retention indicated that primary lung disease was not responsible for the hypoxemia. The failure of oxygen saturation to reach normal levels after prolonged inhalation of 100% oxygen demonstrated that the hypoxemia was not attributable to alveolocapillary block but to a venoarterial shunt in the heart or lungs.

At the completion of these studies, hospitalization was advised for further roentgenologic study and evaluation for surgery. The patient, however, decided against hospitalization, since she was free of symptoms of the pulmonary lesion. One year later on April 25, 1950, the patient was admitted, near death, to the Graduate Hospital. She had experienced no pulmonary symptoms until the afternoon of admission, when uncontrollable hemoptysis had begun. In spite of supportive therapy by blood transfusions, intubation, and aspiration of the trachea, death from asphyxia occurred two hours after admission to the hospital.

At autopsy fresh blood was oozing from the mouth. On the lips there were several small purplish nevi. Internal investigation revealed that both main bronchi contained liquid and clotted blood. The clots had the shape of branching blood casts extending into the subdivisions of the bronchial tree. This condition was the same on both sides. Fresh blood was found in the stomach, the duodenum, jejunum, and greater part of the ileum. The source of the bleeding was a blood-filled, loculated cavity in the anteromedial basal segment of the left lower lobe of the lung. The lesion formed a mass, measuring 4 by 4 by 3 cm., that bulged on the lung surface near the junction of the anterior border and the fissure. From the outside it appeared as a semitranslucent, thin walled cyst with a smooth and tense surface. When the vessels were dissected, it was discovered that the pulmonary artery opened directly into this cavity. Its lining was transversely ridged and formed partial loculations. The communication was wide, and at the narrowest section of the artery, the diameter was 0.5 cm. As illustrated in the figure, a long forceps introduced into the vein at the hilum entered easily into the same cavity. There was a large lake of blood that was in communication with both the pulmonary artery and the pulmonary vein. Around the large cavity there were several smaller ones, lined by the same smooth, pale covering; all of these cavities communicated with the larger one.

Other findings included multiple angiomas in the liver and one in the spleen. The stomach and esophagus showed no vascular lesions. The other organs showed no remarkable changes except for pallor. The cause of death was asphyxia due to massive hemorrhage into the bronchial tree.

COMMENT

Pulmonary arteriovenous fistulas have only recently been recognized as a manifestation of hereditary hemorrhagic telangiectasia (Rendu-Osler-Weber's disease). In Giampalmo's series of cases of pulmonary arteriovenous fistulas collected from the world literature, 60% had associated telangiectasias of the skin or superficial mucous membranes. Although microscopic pulmonary arteriovenous communications have been demonstrated in normal lungs, they are probably not the basis on which clinically important pulmonary arteriovenous fistulas are formed. An angiodysplastic disorder that may involve vessels in the skin, mucous membranes, lungs, and gastrointestinal and urinary tracts appears to be the pathological basis for the clinical findings. It is obvious that in patients with this disorder the potential sites of future lesions cannot be predicted.

It is common for epistaxis to develop early in the course of the disease and for respiratory manifestations to appear later. This patient, however, did not have the symptoms usually associated with pulmonary arteriovenous fistula. In this patient, it is possible that the blood loss from the recurrent epistaxis was responsible for the absence of polycythemia. The oxygen saturation of the arterial blood was reduced to a level at which cyanosis should have been clinically evident,[2] but the cyanosis was not sufficiently striking to trouble the patient or to impress her examiners. Clubbing of the fingers had not developed.

The treatment for pulmonary arteriovenous fistulas is surgical. The fistula in this patient was solitary, and, hence, readily amenable to surgery. In about half of the reported cases, the fistulas were also in a single lobe. Lobectomy or pneumonectomy have frequently been performed with reported cure, but many of these cases were followed for only short periods of time. The practical problem of new lesions appearing in areas of the lung previously considered normal is demonstrated by a case [3] in which three successive lobectomies were performed, only to be followed by a new lesion after each operation. Another patient,[4] originally described in 1944 as cured by pneumonectomy, was recently reported on again as having new lesions in the remaining lung. These multiple new lesions were successfully removed by segmental resection.

Surgical intervention could have been a lifesaving measure in the case we report. Since fistulas may develop in areas of the lung previously considered to be normal, it is essential that unnecessary resection of pulmonary tissue be avoided. Segmental resection would appear to be the treatment of choice for this disorder.

SUMMARY AND CONCLUSIONS

A case of hereditary hemorrhagic telangiectasia is reported in a patient who had been under treatment for epistaxis for 23 years. Hemoptysis developed when the patient was 41, and x-ray examination revealed a nodular mass indicative of an arteriovenous fistula. Surgical treatment was refused by the patient because of the paucity of symptoms attributable to the pulmonary lesion. One year later, without warning, fatal hemoptysis occurred.

This is the second reported case of fatal hemoptysis in a patient with pulmonary arteriovenous fistula. It demonstrates: (1) the need for routine chest x-ray examination of all patients with hereditary hemorrhagic telangiectasia; (2) the value of cardiopulmonary function tests in confirming the diagnosis of pulmonary arteriovenous fistula; (3) the danger of fatal hemoptysis from pulmonary arteriovenous fistula; and (4) the necessity of surgical treatment for this lesion.

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2. Comroe, J. H., and Botelho, S.: Unreliability of Cyanosis in Recognition of Arterial Anoxemia, Am. J. M. Sc. **214**: 1, 1947.

3. Baer, S.; Behrend, A., and Goldburgh, H. L.: Arteriovenous Fistulas of the Lungs, Circulation **1**: 602, 1950.

4. Adams, W. E.; Thornton, T. F., Jr., and Eichelberger, L.: Cavernous Hemangioma of Lung (Arteriovenous Fistula): Report of Case with Successful Treatment by Pneumonectomy, Arch. Surg. **49**: 51 (July) 1944. Charbon, B. C.; Adams, W. E., and Carlson, R. F.: Surgical Treatment of Multiple Arteriovenous Fistulas in the Right Lung in a Patient Having Undergone Left Pneumonectomy Seven Years Earlier for the Same Disease, J. Thoracic Surg. **23**: 188, 1952.

COUNCIL ON FOODS AND NUTRITION

The Joseph Goldberger Award in Clinical Nutrition is presented by the Board of Trustees of the American Medical Association for outstanding and sustained work in the field of clinical nutrition. This year the award, which includes a gold medal (a picture of which appeared in the December, 1952, issue of Today's Health) *and a check for $1,000, made possible by a grant from Nutrition Foundation, was given to Dr. W. Henry Sebrell Jr., Assistant Surgeon General, U. S. Public Health Service, and Director of the National Institutes of Health. He was selected because of his outstanding work in the field of riboflavin deficiency, in pellagra prevention with Dr. Goldberger, and for his sustained work in the field of clinical nutrition. The previous recipients of the award were Dr. Randolph West and Dr. Fuller Albright. In response to the presentation of the award, Dr. Sebrell discussed the present status and the future of nutrition as it relates to medicine in America.*

JAMES R. WILSON, M.D., *Secretary.*

TRENDS AND NEEDS IN NUTRITION

W. H. Sebrell Jr., M.D.

Let me first express my deep appreciation for the honor you have conferred in judging me worthy of the Goldberger Award. As many of you know, my introduction to medical research was as an assistant to Joseph Goldberger. It was a rare opportunity to learn research in nutrition under one of our great medical scientists. Our relation, really that of pupil and teacher, was one that I have always cherished. It is therefore of particular meaning to me to receive this award bearing his name, in the field to which he devoted much of his professional career so brilliantly and successfully. Goldberger was always looking ahead and subjecting his work to reexamination. Similarly, I should like to take this opportunity to reexamine our nutrition program in this country and to look ahead at our nutrition needs, particularly in light of the growing importance of chronic diseases in an aging population. I will try also to delineate some new goals, with emphasis on the need for clinical research.

In the history of nutrition science, one major trend is outstanding: the application has become ever broader. Prior to World War I, available knowledge was used mainly for the prevention or alleviation of dietary deficiency diseases in the individual and small groups. Scurvy, rickets, and goiter were effectively countered at that level. The next step, an organized public health approach, was planned distribution of preventive foods, such as butter, iodized salt, and cod liver oil. Meanwhile, the isolation of vitamins progressed; and just prior to World War II, it became practical to improve staple foods with synthetic nutrients as a means of attacking deficiency diseases in large populations. Vitamin D was added to milk, vitamin A to margarine; and in 1941 the same broad approach was applied to the prevention of beriberi, pellagra, ariboflavinosis, and iron-deficiency anemia, when white flour and bread were first enriched with thiamine, niacin, riboflavin, and iron. Nationwide control of specific dietary diseases was now feasible, and a program to that end was soon launched. This program included improvements in agricultural practices, better nutrition education, a national school lunch program, and advances in food handling, preservation, and distribution.

This trend in the nutrition movement—broadening of the attack—is reflected in accelerated progress against many nutritional disorders. No more dramatic example could be cited than that of pellagra. After Goldberger's demonstration of the cause in 1915,[1] several years passed before effective dietary treatment was widely applied. The reported mortality continued to rise until 1928, when there were approximately 7,146 pellagra deaths, or 6 per 100,000 population.[2] Nearly 98% of those occurred in states where most of the available land was used for cotton.[3] Since 1928 the death rate from pellagra has shown a general downward trend. This is attributable not only to the factors mentioned above but also to local developments —better medical treatment, shifting of population groups, gradual economic improvement through establishment of industry in the South, and change in the types of crops produced. It is interesting to note the pellagra mortality at key points in the nutrition program. By 1937, the year Elvehjem and his associates isolated niacinamide,[4] pellagra mortality was about half that of 1928, or 2.5 per 100,000. Cures with niacin were reported that year by several clinicians, and thereafter the decline was more rapid. In 1943, two years after niacin-enriched foods appeared on the market, the rate was 1; and by 1950 it had dropped to 0.2, representing an unprecedented national low of 260 reported deaths.

The general elevation of our national nutritional status, as evinced by many health gains, is a trend to which medical and nutrition workers can be justly proud. To their efforts can be largely attributed the virtual eradication of frank deficiency disease from the United States. By no means, however, is this to say that the nutrition movement should be allowed to decelerate. On the contrary, a stronger attack than ever should be made against equally serious problems of recent recognition and others of growing magnitude. Accordingly, a spontaneous reorientation of nutrition programs is under way, and we may well pause to consider where emphasis should lie and what approaches seem most productive.

By many indications, this country's major needs in nutrition today are as follows: (1) control of obesity, (2) elucidation of the role of nutrition in the chronic diseases, (3) assessment of nutritional status as a step toward control of borderline deficiencies, (4) means for complete intravenous alimentation, and (5) additional knowledge regarding nutrition in the aged, under stress, and in convalescence. Nutritionists in their efforts to meet these needs should emphasize biochemical and clinical studies of nutrition and metabolism.

OBESITY

Obesity is prevalent throughout the world, occurring even in countries where food is scarce and nutritional status low. In America today it is the gravest known effect of malnutrition. Insurance records indicate that a quarter of the adult population is obese—that is, sufficiently overweight to impair health.[5] Mortality for this group, according to recent estimates by Metropolitan Life,[6] is well above normal at every age and rises with increasing weight. Obesity is associated with a high mortality from cardiovascular-renal disease, diabetes, childbirth, and diseases of the liver and gallbladder. Deaths from diabetes are more than three times as common in the obese as in persons of average weight, and deaths from cirrhosis of the liver among men, more than twice as common. The overweight also have an excessive incidence of hernia, urinary impairments, cancer of the endometrium, and some forms of arthritis. Among the nation's major nutrition problems, obesity is in one respect unique. Like pellagra, it can be controlled in the absence of further knowledge of the underlying mechanism. The physician must play the primary role. He will often have the opportunity to prevent obesity by recommending proper foods for children and controlling the weight of patients at times when gains are likely, as after pregnancy. In managing the obese patient, he should attempt to correct misconceptions about the cause of overweight, work toward revision of dietary habits, and strive to maintain the patient's interest and morale. Psychological factors can sometimes be modified, or eclipsed by arousing counter-emotion concerning the patient's danger. In maintaining a negative calorie balance, diet rather than exercise or drugs should be stressed, lest the patient's main problem, overeating, become obscured. Careful long-term studies indicate that drugs such as thyroid substance and appetite depressants are of little or no ultimate value, since only new eating habits can effect a lasting result.[7] And whether or not glandular disorders are present, it remains that obese persons eat more than they require. An adequate explanation of the physiological and psychological factors of excessive appetite awaits further research.

Because of lack of space, the bibliographic references have been omitted from THE JOURNAL and will appear in the author's reprints.

NUTRIENT RELATIONSHIPS

Investigators in the nutrition field are turning increasingly to basic biochemical approaches. A variety of newly developed techniques, such as isotopic tracing, infra-red analysis, and paper chromatography, are helping to solve many difficult problems. We have reached a point from which continued progress in nutrition demands the frequent application of other disciplines—enzymology, endocrinology, bacteriology, immunology, and biophysics. In the past, nutritionists have been largely concerned with establishing the dietary origin of diseases and identifying the deficient nutrients. Strides have also been made in the study of metabolic systems. Results of the latter work, however, now form an intricate jigsaw puzzle, some pieces of which are confidently joined, some still separate, and others missing. Moreover, much of our knowledge of biochemical reactions has been obtained through studies in vitro and remains to be established as to intact organisms. In other words, how are the essential nutrients, of which 50-odd are now known, utilized under actual conditions normal and pathological? What are the mechanisms of nutrition?

In response to these questions, investigators are beginning to unravel the complex interrelation of nutrients within the body. We now know, for example, that all the essential amino acids, to be fully effective for tissue growth and maintenance in animals, must be consumed at about the same time and in proper relation to one another.[8] Moreover, if the protein part of an adequate diet is fed separately from the remainder, the animals may not thrive.[9] These findings, presumably applicable to man, stress the importance of dietary balance. The interrelation of trace elements in nutrition is also being explored. It has been shown, for instance, that excessive traces of molybdenum in soil may create in foraging livestock a high demand for copper, which is needed for the utilization of iron in blood and enzyme formation.[10] Recent investigations have extended knowledge of the interdependence of copper, iron, and cobalt. In other studies, interrelations have been established between choline and the vitamins B_{12}, folic acid, and ascorbic acid; and these have been related to the amino acids cystine, methionine, tyrosine, and phenylalanine.[11]

But the role of nutritionists in the exploration of metabolic systems is not confined to mapping the interrelations of nutrients. There is also much need for further knowledge of the relations between nutrients and other metabolic agents, namely enzymes and hormones. A recent study at the National Institutes of Health revealed that certain animals require folic acid for normal growth response to estrogen. Dietary manipulation produced a fortyfold differential in the growth of estrogen-stimulated tissues.[12] To extend this finding, biochemical studies are indicated.

DIETARY DEFICIENCY DISEASES

What points of attack are most vulnerable to nutritionists using basic biochemical methods? One would seem to be the dietary deficiency diseases, into which deep inroads have already been made. Medical science in general, and certainly nutritional science, would be greatly advanced by further knowledge of how the various dietary deficiencies produce their effects. Pellagra, for example, raises many questions that only intensive metabolic studies may be hoped to resolve. It would seem that the complexities of this disease have multiplied since Elvehjem identified niacin as Goldberger's preventive factor. One of these complexities concerns the role of maize in pellagra causation. In Casal's first description of the disease as a clinical entity, maize was noted as a major article of diet among pellagrins. Since there seemed no reason why this cereal should be less nutritious than others, it was soon suspected of containing a toxic agent. The "maize toxin" theories lost favor when dietary supplements were shown to be curative, but later findings argue that maize does exert a positive etiological effect. One such indication is that pellagra appears to develop more readily on a maize diet than on other diets no higher in niacin. Another is that substances found in corn have been reported to inhibit growth or produce pellagra-like lesions in animals.[13] Also bearing on the etiological problem are the facts that tryptophan can replace niacin and may serve as its precursor in the body, that pyridoxine is involved in the conversion of tryptophan to niacin, and that maximum conversion requires an optimum balance of amino acids.[14] It would seem, therefore, that a rational concept of pellagra etiology must await elucidation of the metabolic interrelations of a variety of factors—niacin, tryptophan, pyridoxine, the protein intake, and possibly toxic substances, not to mention the enzymes and other nutrients involved. An interesting note might be interjected regarding Goldberger's work with tryptophan. On file at the National Institutes of Health is a letter to Goldberger, dated Aug. 5, 1921, from W. F. Tanner, one of his colleagues working in Georgia. Discussing a patient they had treated with tryptophan, Tanner says, ". . . the improvement in this patient has surpassed anything I have ever seen in a case of pellagra in an equal period of time." Unfortunately, the observation was not published. Twenty-four years were to pass before tryptophan was shown to be interchangeable with niacin in animal diets, and another five years before clinical success was reported.

Our present understanding of the etiology of the disease is well summarized by Chick's 20-year-old formulation modified as she has recently suggested.[15] "Pellagra results from a diet low in niacin and tryptophan, and might be precipitated by certain properties of maize." A well-recognized precipitating factor is sunlight—and therein lies another unknown. Several parts of the body in which a typical pellagra dermatitis frequently develops are those exposed to solar radiation. Even more puzzling is the fact that sunlight exacerbates the diarrhea, nausea, dementia, and other systemic effects of the disease. It has been suggested that sunlight acts through an alteration of porphyrin metabolism, but this is an open question.[16] Other skin irritants also appear to have an effect in producing the skin lesions. There are various unexplained pathological aspects of pellagra, such as changes in the stomach and their possible relation to liver damage. Atrophy of the gastric mucosa and achlorhydria frequently occur, perhaps as a primary result of niacin deficiency. Failure of the mucosa to produce some substance involved in fat metabolism may account for much of the liver damage, which ranges from minor fatty infiltration to extensive cirrhosis. Dried hog stomach as well as extracts of the hog's gastric mucosa seem to be effective in pellagra therapy to an extent unexplained by their niacin content.[16] Some other questions concerning pellagra may be briefly mentioned: Why is the central nervous system peculiarly vulnerable? Why is man the only animal in which the typical brain lesions and dermatitis develop? Are the effects of niacin deficiency related to the role of niacinamide in cellular respiration? Clearly, most of the remaining problems of pellagra and other deficiency diseases await further biochemical studies of mechanism.

CHRONIC DISEASES

Nutrition science, often through use of biochemical techniques, has made notable progress against the major chronic diseases. Here, clinical investigation has been particularly fruitful and should be much extended. A brief summary of some recent findings will emphasize the potentiality of nutrition research in these problems, which increasingly compel attention. Many of you, I am sure, have followed the literature on circulating cholesterol as related to atherosclerosis. You will recall two studies among others that have helped establish that relation. Gofman's group at the University of California found abnormal cholesterol-bearing molecules in the blood of sclerotic patients,[17] and Bevans at Columbia University, by means of a high-cholesterol diet and thyroid interference, produced lesions in the coronary arteries of dogs.[18] More recently, investigators at the National Institutes of Health obtained convincing evidence that the cholesterol in such lesions is deposited from the circulation. In rabbits and rats injected with cholesterol-bearing molecules from blood, arterial damage developed within a few hours, whereas several days are required when cholesterol is fed. Studies are now in progress to determine which of various fat-like substances from the blood are most destructive and whether the lesions are really analogous to atherosclerosis in man.[19] Abnormal deposits of cholesterol in the tissues are associated with several conditions, including hypertension and diabetes. Cholesterol metabolism is known to involve such nutrients as choline, other B vitamins, and some amino acids; and various nutritional deficiencies affect the

deposition.[11] It is impossible as yet to state whether we are dealing with abnormal synthesis or faulty utilization, or whether the dietary level of cholesterol is of practical significance.

In other studies at the Institutes, continued attempts have been made to clarify the mechanism through which a lack of choline may damage the kidneys and liver. Absence of this vitamin from the diet has killed rats within five days. The specific effect, apparently vascular, can be minimized by several procedures, including administration of vitamin B_{12}, corticotropin (ACTH), or nonspecific stimuli inducing an "alarm reaction." [20] An interesting development that may prove of value in chronic disorders has been the isolation of the citrovorum factor. This vitamin form was first described in 1948 as required for the growth of Leuconostoc citrovorum, a microorganism used in the dairy industry. Last year, at the National Institutes of Health, the factor was isolated in the pure state from horse liver,[21] and the chemical structure has been determined at Lederle Laboratories.[22] There have been encouraging clinical reports that the new vitamin, like the related folic acid, is active against macrocytic anemias.[23]

For the past decade, Shorr at the Russell Sage Institute of Pathology has been exploring the therapeutic use of strontium in various derangements of bone metabolism in man. He reports that after maximum calcium storage, strontium can still be stored in the skeleton. Maximum retention of strontium and calcium is achieved with the aid of three auxiliary agents—vitamin D, estrogen, and androgen. Approximately 20 patients with bone demineralization are being treated with daily doses of strontium lactate. All have tolerated the substance well and have maintained the original symptomatic improvement. Osteoporosis as seen in this country is frequently a result of ovarian insufficiency, either primary or menopausal. This clearly suggests an endocrine-nutritional relationship for which we have no explanation.[24]

BORDERLINE DEFICIENCIES

Further clinical research is strongly indicated in the problem of borderline deficiencies—that is, conditions presenting an indefinite clinical picture, but nevertheless one of suboptimal health. Such deficiencies are suspected to result in loss of vigor, retarded growth, low resistance to infection, tooth decay, abnormal births, and other forms of illness and debility. That these conditions are prevalent is unquestionable, but the extent to which malnutrition is responsible is a matter of few facts and much debate. Those facts require supplementation and possibly intensive action. A study by Goldsmith and others at Tulane University illustrates a clinical approach to the development of techniques for assessing nutritional status. The approach is based on the observation that subjects tend to excrete a given vitamin inversely as their tissues require it. Thiamine, riboflavin, niacinamide, folic acid, and pyridoxal were administered orally to 115 persons of varying nutritional status, and the subsequent urinary excretion of vitamins and their metabolites was determined. One of many interesting findings concerned subjects with diabetes mellitus. Their mean excretion of thiamine and riboflavin was significantly high, suggesting a possible abnormality in the utilization of those nutrients. In general, the procedure was found useful in evaluating the thiamin and niacin status of groups.[25]

Studies of this type would be facilitated by precise knowledge of nutritional requirements—extremely difficult to obtain in view of the frequent interdependence or interchangeability of nutrients. A clinical study of niacin requirements was reported this year by the Goldsmith group at Tulane. Signs of pellagra were first induced in several subjects by feeding "corn" diets low in niacin and tryptophan and supplemented with B vitamins. Nutrients were then supplied, excreted metabolites measured, and signs of recovery observed. The findings suggest that the minimum niacin requirement of humans on a high-corn, minimum-tryptophan diet is approximately 7 mg. per day.[26] This is consistent with the National Research Council's recommended dietary allowance, 12 to 15 mg., which is designed to ensure a safe intake.

Complete intravenous alimentation, long a goal of medical science, appears to be almost realized. Amino acids can be obtained in sufficient amounts at prices within reach, and the carbohydrate, vitamin, and mineral components do not present insuperable difficulties. The main remaining problem, which is now under study, is that of developing nontoxic emulsifiers and fat emulsions with the necessary stability and other properties for intravenous use.

SPECIAL NUTRITION PROBLEMS

In an aging population, not only the chronic diseases but the aging process itself are of mounting importance in medicine. Geriatric nutrition becomes a special interest in view of age-associated changes affecting food intake and metabolism—for example, dental difficulties, diminished digestive and circulatory efficiency, hormonal changes, poor eating habits, and emotional factors. In many older persons, faulty absorption or utilization may increase nutritional needs, notably for protein, iron, and calcium. Brief mention may be made of two principal research objectives in this field. One is the determination of specific nutritional requirements in the aged, with attention to upper as well as lower limits. Another is means for preventing metabolic impairments, such as those manifested by osteoporosis and anemia.

Conditions of stress such as surgery, injury, and bedrest also present special nutrition problems. Mortality experience attests the importance of preoperative and postoperative buildup. In surgery as in other major trauma, the system tends toward a catabolic economy suggesting that of starvation. Negative nitrogen balance and the virtual disappearance of ascorbic acid from the circulation are common. In convalescence, similar changes, such as negative nitrogen and calcium balance, may occur. Whereas the hazards of these conditions can be averted to some extent through elevation of nutritional status, an elucidation of their etiology would probably lead to improved techniques. Again, clinical metabolic research is much needed.

COMMENT

At the National Institutes of Health, facilities and plans are being developed for nutrition studies in the new clinical center, which is scheduled to admit patients by mid-summer, 1953. A respiratory chamber is being designed for research in energy metabolism, and the center's five metabolic kitchens, each planned to accommodate about 10 patients, are under construction. Among the first projects will be a study of individual differences in the utilization of foodstuffs, with a view to throwing light on the etiology of obesity. Another project will seek to determine the relative energy values of various diets and food substances. Throughout the clinical center studies, special attention will be given to problems in nutrition, and the seven institutes sharing the 500-bed research hospital will cooperate in nutrition investigations.

Among the deeper mysteries concerning nutrition is the potentiality of the science and its application. In recent years, better nutrition in America, largely a result of efforts to control specific deficiency diseases, produced benefits beyond the most optimistic expectations. Maternal and infant deaths, for instance, have declined to unprecedented levels, a fact for which nutrition can take some of the credit. Similarly, there have been appreciable increases in the growth of children, and we may note with interest the trends in mortality from infections, particularly tuberculosis, that have paralleled the elevation of nutritional status. In the task ahead, there are critical and definite needs, specific objectives, and our general approach is clear. But the ultimate gains in health and welfare are impossible to predict and may exceed even our hopes.

SUMMARY

A reoriented nutrition program in this country is much needed, with increased emphasis on clinical research aimed primarily at obesity, chronic diseases, and borderline deficiencies. In addition, there is need for intensified research on the special nutritional requirements of the aged and persons under stress.

ACCEPTED FOODS

The following products have been accepted as conforming to the rules of the Council.

JAMES R. WILSON, M.D., *Secretary.*

Beech-Nut Packing Company, Canajoharie, N. Y.

Beech-Nut Junior Banana Dessert.

Ingredients: Frozen banana puree, dried banana flakes, whole fresh milk, orange juice, sugar, tapioca, crushed unsweetened pineapple, lemon juice, pure vanilla extract, salt, and sufficient water for preparation.

Analysis (submitted by manufacturer).—Total solids 22.69%, moisture 77.31%, ash 0.53%, fat (ether extract) 0.63%, protein (N × 6.25) 0.65%, crude fiber 0.09%, carbohydrate other than crude fiber (by difference) 20.79%.

Vitamins and Minerals	*Per 100 Gm.*
Thiamine	21 μg
Riboflavin	41 μg
Niacin	0.21 mg.
Ascorbic acid	0.51 mg.
Crude carotene	0.14 mg.
Vitamin A	233 I.U.
Calcium	19 mg.
Phosphorus	22 mg.
Iron (total)	0.17 mg.
Iron (available)	0.16 mg.
Copper	72 μg

Calories.—0.91 per gram; 26.0 per ounce.

Use.—For use in the feeding of older infants and young children.

National Biscuit Company, New York.

Nabisco Brand Low Sodium Toast.

Ingredients: flour, butter (unsalted), sugar, whole milk powder, whole eggs, malt extract, egg whites, yeast and mixed spices (cinnamon, mace, nutmeg, and oil of cassia).

Analysis (submitted by manufacturer).—Total solids 94.25%, moisture, 5.75%, ash 0.69%, protein (N × 6.25) 11.59%, fat 10.22%, sucrose 1.36%, reducing sugars (as invert) 10.31%, crude fiber 0.38%, carbohydrate (by difference) 71.75%, sodium 26.1 mg./100 gm. and 1.96 mg. per piece.

Calories.—125 per ounce; 4.38 per gram.

Use.—For use in sodium-restricted diets.

Richmond-Chase Company, San Jose, Calif.

Diet-Delight Brand Dietetic Pack Pineapple Chunks and Tidbits.

Ingredients: Pineapple packed in unsweetened pineapple juice without added sugar or salt.

Analysis (submitted by manufacturer).—Total solids 15.9%, moisture 84.1%, ash 0.4%, fat (ether extract) 0.1%, protein (N × 6.25) 0.4%, carbohydrates (by difference) 14.6%, carbohydrates (total sugar as invert) 12.5%, crude fiber 0.4%, sodium 1.0 mg. per 100 gm.

Calories.—0.54 per gram; 15.3 per ounce.

Use.—For use in calorie-restricted diets.

S. S. Pierce Company, Boston.

Overland Brand Dietetic Pack White Meat Tuna.

Ingredients: Light meat tuna and distilled water.

Analysis (submitted by distributor).—Protein (N × 6.25) 28.3%, fat (ether extract) 0.75%, carbohydrates (by difference) 0.15%, sodium 40 mg. per 100 gm., cholesterol 70 mg. per 100 gm.

Calories.—1.22 per gram; 35 per ounce.

Use.—A useful adjunct for the planning of low-fat, low-sodium diets.

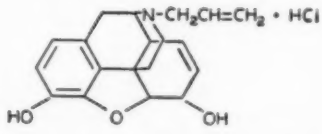
COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. STORMONT, M.D., *Secretary.*

Nalorphine Hydrochloride.—Nalline Hydrochloride (Merck).—$C_{19}H_{21}NO_3.HCl$.—M.W. 347.83.—The structural formula of nalorphine hydrochloride may be represented as follows:



Actions and Uses.—Nalorphine is a derivative of morphine and therefore subject to control under the federal narcotic law. Its action, however, is considered to be pharmacologic rather than chemical, because it exerts little or no analgesic effect and antagonizes such narcotic analgesics as morphine, meperidine, and methadone. Nalorphine promptly reverses the respiratory depression and increases both the minute volume and rate of respiration in patients narcotized by large doses of these compounds. It also prevents the occurrence of respiratory depression when administered 30 minutes prior to a large therapeutic dose of morphine. The drug may also reverse the fall in blood pressure, decrease in pulse pressure, cardiac arrhythmia, and loss of the superficial and deep reflexes produced by these narcotic drugs. It alters the electroencephalographic pattern from that of deep sleep to that of the waking state in patients poisoned with morphine and its derivatives. It is not active against the depression produced by barbiturates, cyclopropane, or ethyl ether.

Nalorphine as the hydrochloride is useful as an antidote in the treatment of accidental overdosage and to combat alarming symptoms of extreme narcosis produced by morphine, its analgesic derivatives, meperidine, and methadone. It is not useful as a cure or for the relief of narcotic addiction. The drug may be administered 10 minutes prior to delivery of parturient women to overcome meperidine respiratory depression of the newborn. Its use in excessively narcotized subjects should not exclude other appropriate supportive therapy. Until the effects of long-term use become known, or are found to be harmless, it should be used only for acute conditions.

Nalorphine hydrochloride appears to be relatively safe, although the lethal dose has not been established for man. Although doses up to 40 mg. per kilogram of body weight are tolerated by experimental animals, it is considered advisable to limit single doses in man to not more than 40 mg. High dosage is usually accompanied by dysphoria, miosis, pseudoptosis, lethargy, mild drowsiness, and sweating. Occasionally nausea, heaviness in the limbs, and hot and cold flashes occur. Pallor, similar to that which accompanies intravenous injection of morphine, is sometimes observed. In morphine addicts, administration of the drug may be followed by typical abstinence changes, such as yawning, rhinorrhea, lacrimation, goose flesh, vomiting, and restlessness.

Dosage.—Nalorphine hydrochloride is administered as a solution by injection intravenously, intramuscularly, or subcutaneously, depending on the rapidity of action desired. Intravenously, the usual adult single dose is 5 to 10 mg., repeated in 10 to 15 minutes if adequate increase in pulmonary ventilation is not obtained. The effect of the drug lasts from two to three hours, and the total dosage to be given depends on the degree and duration of the depression. In severe cases of poisoning, doses as high as 40 mg. may be employed.

Tests and Standards.—

Physical Properties: Nalorphine hydrochloride is a white, odorless, crystalline powder, m.p. 265-270°. It is completely soluble in water, very slightly soluble in chloroform, and practically insoluble in ether. The amount which dissolves in alcohol to form 100 ml. of solution is 6.1 gm. The pH of a 0.5% solution is 4.4-5.5.

Identity Tests: Nalorphine hydrochloride responds to the U. S. P. identity tests A, B, C, and D for morphine sulfate.

To 5 ml. of a 1% solution of nalorphine hydrochloride add 2 drops of nitric acid and 1 ml. of silver nitrate T.S.: a white precipitate forms which is insoluble in diluted nitric acid but soluble in ammonia T.S. *(presence of chloride).*

Dissolve 0.1 gm. of nalorphine hydrochloride in about 2 ml. of water. Add 2 ml. of saturated sodium bicarbonate and heat on a steam bath for 10 min. Cool, filter, wash with water, and dry: the white, crystalline nalorphine melts at 205-208°.

The specific rotation, $[\alpha]^{25}_{D}$, of a solution containing 0.125 gm. of nalorphine hydrochloride in 25 ml. of methanol is — 115 to — 120°.

A 0.01% solution, prepared as described in the spectrophotometric assay for nalorphine hydrochloride, exhibits an ultraviolet absorption maximum at 285 mμ [specific absorbancy, E(1%,1 cm.), about 44], and a minimum at about 260 mμ.

Purity Tests: Dry about 1 gm. of nalorphine hydrochloride, accurately weighed, at 105° for 4 hours: the loss in weight does not exceed 0.5%.

Char about 0.5 gm. of nalorphine hydrochloride, accurately weighed, cool the residue, add 1 ml. of sulfuric acid, heat cautiously until the evolution of sulfur trioxide ceases, ignite, cool, and weigh: the residue does not exceed 0.1%.

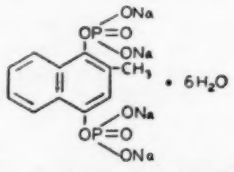
Assay: (Nalorphine Hydrochloride) Prepare a 0.01% solution of nalorphine hydrochloride as follows. Transfer to a 100 ml. volumetric flask 0.1 gm. of nalorphine hydrochloride, accurately weighed, fill to the mark with water, and mix. Transfer to a second 100 ml. volumetric flask 10 ml. of this solution, fill to the mark with water, and mix. Spectrophotometrically determine the absorbancy in a 1 cm. quartz cell at 285 mμ, using water as a blank. The concentration of nalorphine hydrochloride in the solution in mg./ml. = absorbancy ÷ 4.4. The amount of nalorphine hydrochloride is not less than 95.0 nor more than 105.0%.

(Nalorphine) Add 14.5 gm. of 70-72% perchloric acid to 960 ml. of glacial acetic acid contained in a 1,000 ml. volumetric flask and mix well. Slowly add 24.2 gm. of acetic anhydride with constant stirring. Allow the solution to stand for 24 hours. Standardize the acid at 25° against potassium acid phthalate in glacial acetic acid (1:40), using 5 drops of 1% crystal violet in glacial acetic acid as an indicator and titrating to a blue-green end point. Transfer to a 250 ml. Erlenmeyer flask about 0.25 gm. of nalorphine hydrochloride, accurately weighed, add 40 ml. of glacial acetic acid, and heat gently on a steam bath to complete solution. Cool and add 10 ml. of a 1% solution of mercuric acetate in glacial acetic acid. Titrate the solution with 0.1 *N* perchloric acid in glacial acetic acid, using as an indicator 5 drops of a 1% solution of crystal violet in glacial acetic acid. Each milliliter of 0.1 *N* acid is equivalent to 0.3114 gm. of nalorphine and 0.3478 gm. of nalorphine hydrochloride. The amount of nalorphine is not less than 87.3 nor more than 91.8%, equivalent to not less than 97.5 nor more than 102.5% of nalorphine hydrochloride.

Merck & Company, Inc., Rahway, N. J.

Solution Nalline Hydrochloride: 1 and 2 cc. ampuls. A solution containing 5 mg. of nalorphine hydrochloride in each cubic centimeter. Stabilized with 0.2% sodium bisulfite and buffered with 1.5% sodium citrate.

Sodium Menadiol Diphosphate.—Synkayvite Sodium Diphosphate (Hoffmann-LaRoche).—$C_{11}H_8Na_4O_8P_2.6H_2O$.—M.W. 530.22.—The hexahydrate of the tetrasodium salt of 2-methyl-1,4-naphthalenediol diphosphate.—The structural formula of sodium menadiol diphosphate may be represented as follows:



Actions and Uses.—Sodium menadiol diphosphate, a dihydro derivative of menadione, has the same actions and uses as other analogues of vitamin K. It is therefore useful in the prevention and treatment of hemorrhagic disorders associated with hypoprothrombinemia caused by a deficiency of vitamin K, overdosage of systemic anticoagulants such as bishydroxycoumarin, or secondary to the administration of large doses or the prolonged use of salicylates, quinine, sulfonamides, arsenicals, and barbiturates. It is also indicated in physiologic hypoprothrombinemia of the newborn as well as in prothrombin deficiency caused by gastrointestinal disorders which interfere with the absorption of the vitamin, including deficiency of intestinal bile that is essential for the absorption of natural and fat soluble forms of vitamin K. Sodium menadiol diphosphate is water soluble and therefore absorbed following oral administration without bile salts. It is also effective by parenteral administration.

Dosage.—Sodium menadiol diphosphate is administered orally and by injection subcutaneously, intramuscularly, or intravenously. On the basis of molecular weights, the dosage should be at least three times that of menadione to provide a theoretically equivalent amount of vitamin K activity. The calculated ratio is 3.1 mg. of sodium menadiol diphosphate to 1 mg. of menadione. For the management of prothrombin deficient hemorrhagic states, the average dose for adults should range from 3 to 6 mg. daily and may be administered orally or parenterally as the situation requires. Larger doses may be given if necessary. As an antidote for bishydroxycoumarin overdosage, a dose of 75 mg. intramuscularly, repeated as often as necessary, is recommended. For the prevention of hemorrhage associated with prothrombin deficiency caused by salicylates after tonsillectomy, a total daily dosage of 10 to 25 mg. (administered in three divided doses) is recommended. For the prevention of hemorrhagic disease of the newborn, either 6 to 12 mg. is administered parenterally to the mother during labor, or 3 mg. is given to the infant immediately after delivery.

Tests and Standards.—

Physical Properties: Sodium menadiol diphosphate is a white or pink to light brown hygroscopic powder with a characteristic odor. It is very soluble in water, and insoluble in alcohol and ether. The pH of a 1% solution is 7.8-8.5.

Identity Tests: Dip a clean platinum wire into a 1% solution of sodium menadiol diphosphate and heat in the colorless flame of a Bunsen burner: an intense yellow color results which is completely masked by a cobalt glass filter *(presence of sodium).*

To about 0.1 gm. of sodium menadiol diphosphate in a 200 ml. beaker, add about 2 ml. of sulfuric acid, 3 ml. of water, and 2 drops of nitric acid. Heat cautiously until white fumes evolve. Cool the solution and dilute it to about 50 ml. with water. Add ammonium hydroxide T.S. until neutral to litmus or until a slight precipitate forms. Add diluted nitric acid until the solution is acid to litmus. Warm to about 60° and add about 5 ml. of ammonium molybdate T.S.: a yellow precipitate forms slowly *(presence of phosphorus).*

A 0.004% solution of sodium menadiol diphosphate, prepared as directed in the assay, exhibits an ultraviolet absorption maximum at about 300 mμ [specific absorbancy, E(1%,1 cm.), about 130] and a minimum at about 254 mμ.

Purity Tests: Dry about 2 gm. of sodium menadiol diphosphate, accurately weighed, in an Abderhalden-pistol dryer over phosphorus pentoxide and under vacuum at 140° for 4 hours (propionic acid): the loss in weight is 18.0-21.0%.

Assay: (Sodium Menadiol Diphosphate) Prepare a 0.004% solution of sodium menadiol diphosphate as follows. Transfer to a 100 ml. volumetric flask an amount of sodium menadiol diphosphate, accurately weighed, equivalent to about 0.4 gm. of anhydrous diphosphate. Fill to the mark with *U. S. P. phosphate buffer* (pH 8.0) and mix. Transfer to a second 100 ml. volumetric flask 10 ml. of this solution, fill to the mark with buffer solution, and mix. Finally transfer to a third 100 ml. volumetric flask 10 ml. of this last solution, fill to the mark with buffer solution, and mix. Spectrophotometrically determine the absorbancy in a 1 cm. quartz cell at 300 mμ, using buffer as a blank. The concentration of anhydrous sodium menadiol diphosphate in the solution in mg./ml. = absorbancy ÷ 13.0. The amount of anhydrous sodium menadiol diphosphate is not less than 95.0 nor more than 105.0%.

Dosage Forms of Sodium Menadiol Diphosphate

SOLUTIONS. *Physical Properties:* The pH of the solution is 7.7-8.0.

Identity Tests: The solution responds to the second and third identity tests for the active ingredient in the monograph for sodium menadiol diphosphate.

Assay: (Sodium Menadiol Diphosphate) Transfer to a separatory funnel an amount of solution, accurately measured, equivalent to about 0.2 gm. of sodium menadiol diphosphate. Dilute with water to a volume of 25 ml. Extract the solution and a blank consisting of 25 ml. of water with three 25 ml. portions of butyl acetate. Discard the butyl acetate extracts. Wash the solution and blank successively with 25 ml. of ether and petroleum ether and discard the washings. Quantitatively transfer to a 50 ml. volumetric flask the aqueous layer using *U. S. P. phosphate buffer* (pH 8.0) for rinsing. Proceed with both the solution and blank as directed in the spectrophotometric assay for sodium menadiol diphosphate in the monograph for sodium menadiol diphosphate starting with, "Fill to the mark with *U. S. P. phosphate buffer* (pH 8.0) and mix." The concentration of anhydrous sodium menadiol diphosphate in the solution in mg./ml. = absorbancy ÷ 13.0. Each milligram of anhydrous sodium menadiol diphosphate is equivalent to 1.256 mg. of sodium menadiol diphosphate hexahydrate. The amount of sodium menadiol diphosphate is not less than 95.0 nor more than 110.0% of the labeled amount.

TABLETS. *Identity Tests:* The powdered tablet material responds to the identity tests for the active ingredient in the monograph for sodium menadiol diphosphate.

Assay: (Sodium Menadiol Diphosphate) Weigh 20 tablets and powder them. Transfer to a 100 ml. volumetric flask an amount of powder, accurately weighed, equivalent to about 0.4 gm. of sodium menadiol diphosphate. Add about 50 ml. of *U. S. P. phosphate buffer* solution (pH 8.0) to the flask and agitate mechanically for 1 hour. Fill to the mark with buffer solution and mix. Filter the solution and proceed as directed in the spectrophotometric assay for sodium menadiol diphosphate in the monograph for sodium menadiol diphosphate starting with, "Transfer to a second 100 ml. volumetric flask 10 ml. of this solution." The concentration of anhydrous sodium menadiol diphosphate in the solution

in mg./ml. = absorbancy ÷ 13.0. Each milligram of anhydrous sodium menadiol diphosphate is equivalent to 1.256 mg. of sodium menadiol diphosphate hexahydrate. The amount of sodium menadiol diphosphate is not less than 95.0 nor more than 110.0% of the labeled amount.

Hoffmann-LaRoche, Inc., Nutley, N. J.

Solution Synkayvite Sodium Diphosphate: 1 cc. ampuls. An isotonic solution containing 5 or 10 mg. of sodium menadiol diphosphate in each cubic centimeter. 2 cc. ampuls. An isotonic solution containing 37.5 mg. of sodium menadiol diphosphate in each cubic centimeter. Stabilized with sodium metabisulfite and preserved with 0.45% phenol.

Tablets Synkayvite Sodium Diphosphate: 5 mg. U. S. patent 2,359,132. U. S. trademark 393,117.

CORRECTION

Disulfiram.—In THE JOURNAL, April 18, 1953, page 1408, transposition of a line of type resulted in a confused statement in the second paragraph under *Actions and Uses* in the monograph on disulfiram. The paragraph should have read: "The effectiveness of disulfiram as an aid in overcoming the drinking habit depends upon the demonstration of the unpleasant effects produced following ingestion of even a small amount of alcohol. This is accomplished by administering a trial dose of 15 cc. of 100 proof whisky followed immediately by small amounts of other alcoholic beverages, if such intoxicants might be used by the patient, and demonstrating the reaction produced on others or on the patient himself following drug therapy."

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

APPARATUS ACCEPTED

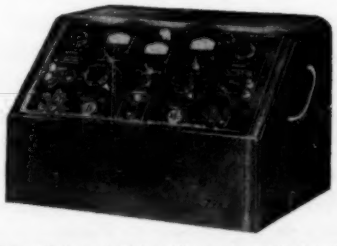
The following additional products have been accepted as conforming to the rules of the Council on Physical Medicine and Rehabilitation of the American Medical Association for inclusion in Apparatus Accepted. A copy of the rules on which the Council bases its action will be sent on application.

RALPH E. DE FOREST, M.D., *Secretary.*

Teca Low Volt and Pulse Generator, Model CD4P

Teca Corporation, 139 East 23rd St., New York 10.

The Teca Low Volt and Pulse Generator, Model CD4P, is a device for generating currents to stimulate muscle and nerve. It is a table model with over-all dimensions of 32 by 40 by 55 cm. (12½ by 15¾ by 21⅝ in.) and weighing 27 kg. (59 lb.). Packed for shipment it measures 39 by 48 by 62 cm. (15½ by 18¾ by 24⅝ in.) and weighs 34 kg. (74 lb.). A source of alternating current at 50 to 60 cycles and 110 volts is required; the power consumption is 130 watts.



Teca Low Volt and Pulse Generator, Model CD4P.

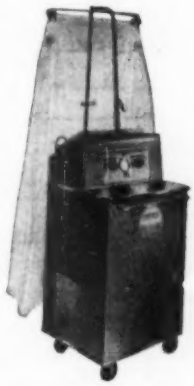
This model is stated to generate the following currents: (1) alternating current ranging from 18 to 3,000 cycles per second; (2) direct current in the following modifications: *a.* Half-wave (60 pulses per second) *b.* Straight (less than 0.1% ripple) *c.* Any desired degree of pulsation; (3) alternating and direct current pulses of approximately 1 millisecond duration adjustable from 1 to 100 pulses per second; (4) all currents (except pulsed currents) surging from 6 to 60 surges per minute; and (5) superimposed currents consisting of combinations of direct and alternating current.

Evidence of satisfactory construction and performance was obtained from a laboratory acceptable to the Council.

Continentalair Iceless Oxygen Tent, Model M-4000

Continental Hospital Service, 18624 Detroit Avenue, Cleveland (Lakewood) 7, Ohio.

The Continentalair Iceless Oxygen Tent, Model M-4000, is an electrically driven apparatus for administering a cooled stream of oxygen to a patient in bed. It differs from the previously accepted Model M-3000 in that the inside air chamber, which houses the cooling coil and was heretofore constructed of galvanized sheet steel, is now cast of a single piece of aluminum. The change not only reduces the total weight of the apparatus by about 9 kg., but also reduces the complexity of the apparatus and the danger of leaks.



Continentalair Iceless Oxygen Tent, Model M-4000.

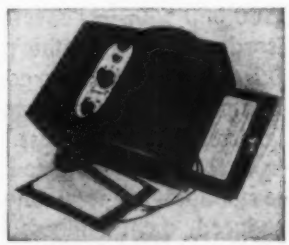
Unpacked, the present model weighs 72 kg. (185 lb.). Packed for shipment it measures 134 by 66 by 69 cm. (53 by 26 by 27 in.) and weighs 123 kg. (272 lb.). It requires a 60-cycle alternating current at 115 volts and draws 7.4 watts.

Evidence of satisfactory construction and performance was obtained from a laboratory acceptable to the Council.

Mead Home Treatment Stimulator, Model S-1

St. Louis Instrument Engineering, Inc., 1507 S. Compton Ave., St. Louis 4.

The Mead Home Treatment Stimulator, Model S-1, is a generator of interrupted direct current designed for use by patients who require prolonged treatment of temporarily paralyzed muscles. In appearance it is a portable rectangular box measuring 10.4 (height) by 30 by 22 cm. (4½ by 12 by 8¾ in.) and weighing 4.8 kg. (10½ lb.). Packed for shipment it measures 20 by 36 by 25 cm. (8 by 14 by 10 in.) and weighs 5.9 kg. (13 lb.). The shipping weight includes one large dispersive electrode, one active electrode handle, two electrode tips (2 inch and ¾ inch diameter), two electrode lead-cords, and one line cable. It requires a source of 60-cycle alternating current at 115 volts and draws 40 watts. Evidence of satisfactory construction and performance was obtained from a laboratory acceptable to the Council.



Mead Home Treatment Stimulator, Model S-1.

Maico "Top Secret" Model L Hearing Aid

The Maico Company, Inc., 21 North Third St., Minneapolis 1.

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THE JOURNAL
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MENTAL HEALTH

Startling figures have been compiled recently by the National Association for Mental Health.[1] These figures show there are in the United States on any given day as many patients in mental hospitals as there are in all other hospitals combined. In addition there are 120,000 mentally deficient and about 20,000 epileptic patients in special institutions. Each year about 250,000 new patients are admitted to mental hospitals and about 100,000 more who have been in mental hospitals before are readmitted. At least 200,000 persons, children included, are seen per year in psychiatric clinics and an unknown number visit private psychiatrists for treatment. This is probably only a small part of the total number of persons in the country who have some form of mental illness or other personality disorder. The number of these persons has been estimated to be about 9,000,000, including 1,500,000 with incapacitating psychosis or neurosis and 7,500,000 with less severe forms of neurosis, behavior disorder, or psychopathic personality. It is estimated that 30% of all patients who go to general hospitals and 50% of all patients who go to general practitioners are suffering from mental illness, personality disturbance, or physical illness associated with these conditions. From the standpoint of total amount of disability and suffering produced, mental illness is a major medical problem facing the profession today.

Sociologically and economically, too, mental illness is a serious problem. Personality disturbances play a significant role in delinquency, crime, addiction, and suicide. Each year in the United States there are about 1,750,000 serious crimes and 17,000 suicides. Each year approximately 265,000 children between the ages of 7 and 17 are brought to juvenile courts (one out of every 100 in this age group). In addition, about 50,000 persons in this country are addicted to narcotics and about 3,800,000 are problem drinkers, 950,000 of whom have severe chronic alcoholism. The cost to the public of these aberrations is tremendous, as is the cost of frank mental illness. The American taxpayer pays more than one billion dollars annually to state and federal governments for the maintenance of psychiatric hospitals and services and for the payment of compensation to veterans disabled because of psychiatric disorders.

1. Facts and Figures About Mental Illness and Other Personality Disturbances, New York, National Association for Mental Health, Inc., 1952.

The battle against mental illness has been waged on many fronts for many years. Local, state, national, and international organizations have participated. Early efforts were confined to the provision of custodial care for those already ill. In recent years emphasis has shifted to active treatment, to the prevention of illness, and to the cultivation of positive mental health. At the international level the World Federation for Mental Health, with 37 member nations, is working to promote the highest possible level of mental health in all countries. Its activities include promotion of cooperation between agencies of the United Nations, national governments, and professional and lay groups concerned with mental health; the promotion of improved standards of training in the mental health professions; the provision of information, advice, and assistance to workers in the field; and the sponsoring of international congresses on mental health, the next to be held in Toronto in 1954. Within the framework of the United Nations, the World Health Organization has established a division on mental health that carries on surveys, promotes training of personnel, and sets up expert committees to study special aspects of mental health. The World Medical Association also will draw attention to psychological medicine at its conference on undergraduate education to be held in London in August, 1953.

On the national level a number of voluntary and governmental mental health agencies are active in this country. These include the National Association for Mental Health (formed in 1950 as a merger of the National Committee for Mental Hygiene, the National Mental Health Foundation, and the Psychiatric Foundation), the American Psychiatric Association, the National Institute of Mental Health of the U. S. Public Health Service, the Group for the Advancement of Psychiatry, the American Orthopsychiatric Society, the American Group Therapy Association, the American Association of Psychiatric Social Workers, the Commission on Religion and Health of the Federal Council of Churches of Christ in America, the Commonwealth Foundation, the Milbank Memorial Fund, the American Foundation for Mental Hygiene, and a number of other groups. The total program to which each of these organizations contributes is broad. It includes the improvement of conditions in existing mental hospitals and clinics; the construction of new hospitals; the recruitment and training of mental health personnel (psychiatrists, clinical psychologists, and psychiatric nurses, aides, and social workers); the promotion of research on treatment and prevention of mental illness; the education of the public to eliminate the stigma associated with mental illness; and the establishment of state and community mental hygiene services. In 1951 the American Medical Association established a Committee on Mental Health to work with these organizations and with county and state medical societies to develop coordinated programs. This committee is particularly concerned with bringing about a much needed closer integration of psychiatry and general medicine in all fields.

There are in addition several national organizations that deal only with special aspects of the mental health

problem. These include the American Association on Mental Deficiency; the National Epilepsy League and the American branch of the International League Against Epilepsy; the National Committee on Alcohol Hygiene, the National Committee on Alcoholism, the National States' Conference on Alcoholism, and Alcoholics Anonymous. Other organizations, such as the American Institute of Family Relations, the Family Service Association of America, and the National Council on Family Relations, contribute significantly to the prevention of mental illness. At the local level mental hygiene programs are carried on by many state, municipal, and voluntary agencies, usually aided by one or more national organizations. Recently some 250 voluntary local organizations became members of the National Association for Mental Health, and others are expected to follow suit.[2]

It is evident that the attack on the mental health problem has been intensive, but much remains to be done in the fields of treatment, prevention, and research. In spite of the efforts exerted, funds, personnel, and facilities are inadequate. Only two states have five beds for mental illness per 1,000 population.[1] Three out of every four state mental hospitals report from 20 to 50% overcrowding. Some have beds placed so close together that if a seat were provided for each patient, the patients would be unable to reach their beds. It is reported that not a single public mental hospital meets the standards of the American Psychiatric Association for personnel. Some have only one doctor for 400 or 500 patients. The average state mental hospital is about 40% understaffed in physicians, 66% understaffed in registered nurses, 28% understaffed in hospital attendants, 75% understaffed in psychiatric social workers, and 76% understaffed in clinical psychologists, according to the American Psychiatric Association standards for "continued" (not "intensive") treatment. In the poorer hospitals attendants often have no training and are not selected on the basis of their ability to understand the problems of mentally sick persons. Funds available for research on mental illness amount to only about $4.15 per patient under treatment as compared with $28.20 for poliomyelitis, $26.80 for tuberculosis, and $27.70 for cancer.

In the field of prevention too, much needs to be done. Few communities have an adequate over-all mental hygiene program that strikes effectively at the many sources of maladjustment. Suggested programs have included: (1) child guidance clinics to aid parents in the understanding and management of early behavior disorders; (2) an adequate mental health program in each school, industry, and public health department, with proper orientation of all personnel toward mental hygiene; (3) adequate mental health instruction in schools of law, theology, and medicine; (4) mental health orientation of local medical societies, bar associations, and church councils; of persons connected with the press, motion pictures, radio, television, and public libraries; and of law enforcement officers and court personnel; (5) adequate recreational facilities for all ages and races; and (6) adequate facilities for the mental and physical care of the aged.

A health problem of this magnitude offers a challenge to every physician. There is a need for physician participation in lay and professional mental health groups. The Group for the Advancement of Psychiatry has published a short report entitled "An Outline for Evaluation of a Community Program in Mental Hygiene"[3] that will be helpful to physicians or groups interested in improving the mental hygiene facilities of their communities, and both the National Association for Mental Health [4] and the American Psychiatric Association [5] have available literature and expert advisors on all aspects of community mental health education and organization. The Group for the Advancement of Psychiatry suggests that interested persons and groups can best approach the problem by: (1) becoming familiar with existing mental hygiene activities in the community for the sake of evaluating their effectiveness or deficiency, (2) working with other interested persons to formulate long-range plans for the improvement of any deficiency found, and (3) initiating concerted action to carry out this plan, choosing the goal most significant and at the same time most practical for the community. National Mental Health Week, to be observed May 3-9, is an appropriate time to give this problem serious consideration.

THE JOSEPH GOLDBERGER AWARD OF 1952

Joseph Goldberger was instrumental in demonstrating by experiment and by critical appraisal of many conflicting records that pellagra results essentially from faulty nutrition. In Goldberger's efforts to establish scientific and public recognition of this relationship, a younger associate, Dr. William Henry Sebrell Jr., played an important role, a role that shaped his own career so that he has become one of America's most notable investigators in exploring the relationships of nutrition to human and animal health. The Joseph Goldberger Award was established by the Board of Trustees of the American Medical Association in cooperation with the Nutrition Foundation to serve as a stimulus to medical investigators in advancing the frontiers of public and personal health, with special reference to the significance of good food.

Dr. Sebrell has not only waged a winning battle in his efforts to understand and defeat pellagra but in other areas of nutritional research has made it possible for his fellow men in all walks of life to reach higher levels of health and accomplishment. To mention only a few of his major contributions, one can cite his papers on riboflavin deficiency in man and in experimental animals, his later work on the origin and therapy of nutritional anemias, with special reference to folic acid and vitamin B_{12}, and his further investigations of the role of microorganisms in the intestinal tract. Added to Dr. Sebrell's

2. Annual Report 1951-1952, New York, National Association for Mental Health, Inc., 1952.

3. An Outline for Evaluation of a Community Program in Mental Hygiene, Report No. 8, Topeka, Kan., Group for the Advancement of Psychiatry, 1949. (Obtainable by writing to Group for Advancement of Psychiatry, 3617 W. 6th Ave., Topeka, Kan.)

4. The National Association for Mental Health, Inc., 1790 Broadway, New York 19, N. Y.

5. The American Psychiatric Association, Inc., Austin M. Davies, Executive Assistant, 1270 Avenue of the Americas, New York 20, N. Y.

qualifications as an investigator has been a record of notable success as an administrative officer, marked by steady progress to his present position as Assistant Surgeon General, U. S. Public Health Service, and director of the National Institutes of Health.

The Joseph Goldberger Award in Clinical Nutrition was conferred on Dr. Sebrell at the recent annual meeting of the Council on Foods and Nutrition of the American Medical Association. At the request of the Council and because of long personal friendship, Dr. Glenn King was asked to present the award. Elsewhere in this issue of THE JOURNAL (page 42), Dr. Sebrell discusses the present and future outlook for nutrition in the United States.

DEFERMENT OF PRIORITY 3 INTERNS

The Selective Service System began, in March of this year, to issue calls for physicians classified in priority 3. In many instances registrants who are first year interns and the hospitals that employ them have failed to provide the local boards with sufficient positive evidence to validate requests for deferment. Therefore, many of these persons have been called up for active military service. Apparently it has been erroneously assumed that such physicians would be automatically deferred until the completion of their internships. This problem and the confusion that attends it results from the failure of interns and the hospitals that employ them to follow the procedure that has been established by selective service to handle deferments. It should be understood that, although it is the policy of the National Selective Service System to defer physicians until they have completed one year of internship, such deferment is not automatic.

The regulations of the National Selective Service System clearly state that responsibility for requesting deferment rests with the individual and with his employer. It is essential, therefore, that as soon as a graduating medical student receives his appointment as an intern he, and the hospital that employs him, file a written request for deferment with the individual's selective service local board. In this request the importance of the internship, and a statement to the effect that it is to be his first year of such service, should be stressed.

If an intern or the hospital that employs him has requested deferment and the intern has subsequently been classified as available for active military service, the intern or the hospital may, within 10 days of the mailing of the classification notice, file an appeal. Should the state appeal board sustain the classification, the registrant or his employer may, if there is a dissenting vote in the appeal board, file a written request with the local board to have the decision appealed to the National Selective Service Appeal Board. If there is no dissenting vote, the state or national director of selective service may appeal the case to the President.

1. Becker, F. T.: Milkers' Nodules: Report of Four Cases, J. A. M. A. **115**: 2140 (Dec. 21) 1940.

2. Cawley, E. P.; Whitmore, C. W., and Wheeler, C. E.: Milkers' Nodules, Southern Med. J. **46**: 21 (Jan.) 1953.

3. Nomland, R., and McKee, A. P.: Milkers' Nodules: Report of Ten Cases, A. M. A. Arch. Dermat. & Syph. **65**: 663 (June) 1952.

MILKERS' NODULES

Although milkers' nodules is apparently an uncommon occupational disease in the United States, there is some reason to believe that many cases of this unique disorder are unrecognized and that the actual incidence is higher than is suggested by the number of cases recorded in the literature. Since Becker [1] first described milkers' nodules in four residents of northern Minnesota and Wisconsin, others have reported finding the disease in Delaware, Louisiana, Illinois, and in other sections of the Midwest, East, and South. According to Cawley, Whitmore, and Wheeler,[2] a total of 20 cases have been reported in the United States to date.

Milkers' nodules is a virus disease of the skin that is usually acquired by man as the result of milking cows whose udder and teats have been affected by false cowpox, as distinguished from vaccinia. Material from milkers' nodules reveals virus-like corpuscles which differ in size and shape from those of vaccinia virus. Nomland and McKee,[3] believe the disease is always acquired through the milking of infected cows and that the virus is transmitted from cow to cow by the milker. The incubation period lasts from five to seven days, and the infection ostensibly enters the skin through an abrasion, although injury to the skin is probably not a prerequisite.

The nodules usually occur on exposed areas of the body, including the fingers, hands, forearms, face, and the neck. The lesions originate as erythematous papules and, when fully developed, are found to be firm, reddish or reddish-blue, and from 1 to 2 cm. in diameter. From 1 to 40 lesions are seen, but the usual number is less than 10. Although the clinical course of the disease is asymptomatic, lymphangitis, lymphadenitis, secondary dermatoses, toxic eruptions, and mild constitutional reactions sometimes occur. Fortunately, milkers' nodules is a self-limited, relatively benign disease that does not require treatment; however, the occasional complications that do occur are amenable to conventional treatment.

THE DISTRIBUTION OF GAMMA GLOBULIN

On page 68 in this issue of THE JOURNAL is a summary of the plan of the Office of Defense Mobilization for the distribution of gamma globulin for the prophylaxis of poliomyelitis, measles, and infectious hepatitis. While this plan was approved by the Health Resources Advisory Committee, the Office of Defense Mobilization expects that some modification and supplementation of the plan will be necessary from time to time in the light of experience and existing circumstances. The U. S. Public Health Service has been delegated to distribute gamma globulin in accordance with policies established by the Office of Defense Mobilization, but the state or territory health officer will have full responsibility for the distribution of gamma globulin allocated to him by the Public Health Service. The private physician should request gamma globulin from the local health department or other health authority. The Office of Defense Mobilization also recommends that to obtain gamma globulin for prophylaxis, physicians should furnish the name of the patient, date of onset of case, and the names, ages, and weights of household contacts to be inoculated.

ORGANIZATION SECTION

REFERENCE COMMITTEES OF THE HOUSE OF DELEGATES

The Speaker of the House of Delegates of the American Medical Association, Dr. James R. Reuling, New York, has appointed delegates to serve on the reference committees of the House at the New York Meeting, as follows:

Amendments to the Constitution and Bylaws
John W. Green, *Chairman,* California
William F. Costello, New Jersey
Thomas M. D'Angelo, New York
Jesse D. Hamer, Arizona
J. Paul Jones, Alabama

Board of Trustees and Secretary, Reports of
H. Russell Brown, *Chairman,* South Dakota
Clark Bailey, Kentucky
John F. Burton, Oklahoma
Bernard Klein, Illinois
Raymond M. McKeown, Oregon

Credentials
William Weston Jr., *Chairman,* South Carolina
Paul Baldwin, Missouri
Charles M. Hamilton, Tennessee
Howard K. Petry, Pennsylvania
Hoyt B. Woolley, Idaho

Executive Session
Grover C. Penberthy, *Chairman,* Section on Surgery, General and Abdominal
George W. Kosmak, New York
Fred H. Muller, Illinois
John W. Parsons, Maryland
Martyn A. Vickers, Maine

Hygiene and Public Health
Everett P. Coleman, *Chairman,* Illinois
Earle M. Chapman, Massachusetts
Willis H. Huron, Michigan
Charles L. Shafer, Pennsylvania
John K. Glen, Texas

Industrial Health
A. H. Aaron, *Chairman,* New York
Lewis A. Alesen, California
Charles L. Farrell, Rhode Island
Charles G. Hayden, Massachusetts
Millard D. Hill, North Carolina

Insurance and Medical Service
Gerald V. Caughlan, *Chairman,* Iowa
George A. Earl, Minnesota
Percy E. Hopkins, Illinois
Louis M. Orr II, Florida
Raymond L. Zech, Washington

Legislation and Public Relations
George S. Klump, *Chairman,* Pennsylvania
Arthur A. Brindley, Ohio
Thomas J. Danaher, Connecticut
S. J. McClendon, California
Arthur C. Scott Jr., Texas

Medical Education and Hospitals
Herbert B. Wright, *Chairman,* Ohio
Gilson Colby Engel, Pennsylvania
Val H. Fuchs, Louisiana
Raymond F. Peterson, Montana
Hans H. Reese, Section on Nervous and Mental Diseases

Medical Military Affairs
Elmer P. Weigel, *Chairman,* New Jersey
Hugh H. Hussey, District of Columbia
Laurence S. Nelson Sr., Kansas
W. Andrew Bunten, Wyoming
Wendell C. Stover, Indiana

Miscellaneous Business
Walter P. Anderton, *Chairman,* New York
Frank H. Krusen, Section on Physical Medicine and Rehabilitation
Charles H. Phifer, Illinois
George A. Unfug, Colorado
Robertson Ward, California

Reports of Officers
Wyman D. Barrett, *Chairman,* Michigan
Paul A. Davis, Section on General Practice
Robert B. Homan Jr., Texas
Ralph A. Johnson, Michigan
Charles H. Richardson, Georgia

Rules and Order of Business
Hollis E. Johnson, *Chairman,* Section on Diseases of the Chest
John P. Culpepper, Mississippi
Peter J. DiNatale, New York
George M. Fister, Utah
Eugene F. Hoffman, California

Sections and Section and Work
James P. Hammond, *Chairman,* Vermont
Carl H. Gellenthien, New Mexico
Karl S. J. Hohlen, Nebraska
Roland W. Stahr, Nevada
Willard A. Wright, North Dakota

Tellers
William R. Brooksher, *Chairman,* Arkansas
Vincent W. Archer, Virginia
Edward P. Flood, New York
E. S. Jones, Indiana
Carl A. Lincke, Ohio

Sergeants-at-Arms
Laurence L. Fitchett, *Master Sergeant,* Delaware
Frank J. Holroyd, West Virginia
Russel V. Lee, Section on Military Medicine

COLOR TELEVISION AT THE NEW YORK MEETING

The Color Television Program at the New York Meeting will originate at New York Hospital and will be shown on two 5 by 6 feet screens in the Hendrik Hudson Room of the Roosevelt Hotel on Tuesday, Wednesday, and Thursday, June 2, 3, and 4, from 10 to 12 o'clock in the morning and from 2 to 4 o'clock in the afternoon. The program, as heretofore, is presented through the courtesy of Smith, Kline and French Laboratories.

The Subcommittee on Television of the Local Committee on Arrangements, Dr. Preston A. Wade, Chairman, has prepared the following program:

TUESDAY, JUNE 2—10 TO 12 A. M.

SINUSITIS

Introduction. JAMES A. MOORE.

Anatomy and Physiology.
JAMES A. MOORE and STUART L. CRAIG.

Diagnosis. JAMES A. MOORE and STUART L. CRAIG.

X-Ray Findings. IRVING SCHWARTZ.

Allergic Factors. ROBERT A. COOKE.

Psychosomatic Factors. STEWART G. WOLF.

Treatment.
JAMES A. MOORE, STUART L. CRAIG, ROBERT A. COOKE, and STEWART G. WOLF.

Operation (Caldwell-Luc). JAMES A. MOORE.

Participants:

JAMES A. MOORE (Moderator) Associate Professor of Clinical Surgery (Otolaryngology), Cornell University Medical College; Attending Surgeon in Charge of Otolaryngology, New York Hospital.

STUART L. CRAIG, Surgeon, New York Eye and Ear Infirmary.

ROBERT A. COOKE, Consulting Allergist, Roosevelt Hospital.

IRVING SCHWARTZ, Instructor in Radiology, Cornell University Medical College.

STEWART G. WOLF, Professor and Head of the Department of Medicine, University of Oklahoma School of Medicine.

TUESDAY, JUNE 2—2 TO 4 P. M.

PEPTIC ULCER

Introduction. THOMAS P. ALMY.

Anatomy; Pathologic Physiology.
THOMAS P. ALMY and STEWART G. WOLF.

Diagnosis. THOMAS P. ALMY and STEWART G. WOLF.

X-Ray Diagnosis. SYDNEY WEINTRAUB.

Treatment: Medical; Psychotherapy; Surgical.
THOMAS P. ALMY, STEWART G. WOLF, S. W. MOORE, and SYDNEY WEINTRAUB.

Operation (Gastric Resection). S. W. MOORE.

Participants:

THOMAS P. ALMY (Moderator), Associate Professor of Neoplastic Diseases (Medicine), Cornell University Medical College; Associate Attending Physician, New York Hospital.

S. W. MOORE, Associate Professor of Clinical Surgery, Cornell University Medical College; Attending Surgeon, New York Hospital.

SYDNEY WEINTRAUB, Professor of Clinical Radiology, Cornell University Medical College; Attending Radiologist, New York Hospital.

STEWART G. WOLF, Professor and Head of the Department of Medicine, University of Oklahoma School of Medicine.

WEDNESDAY, JUNE 3—10 TO 12 A. M.

MITRAL STENOSIS

Introduction. CLAUDE E. FORKNER.

The Clinical Picture and Pathogenesis of Mitral Stenosis Following Rheumatic Fever.
HAROLD J. STEWART, JOHN M. PEARCE, and MARY A. ENGLE.

Cardiac Catheterization and Angiocardiography.
DANIEL S. LUKAS and ISRAEL STEINBERG.

Panel Discussion on the Indications for Surgical Treatment: Pre and Postoperative Management.
The Cardiovascular Team.

Operation: Mitral Valvulotomy.
FRANK GLENN and JOSEPH F. ARTUSIO.

Summary. HAROLD J. STEWART and FRANK GLENN.

Conclusion. CLAUDE E. FORKNER.

Participants:

FRANK GLENN (Moderator), LEWIS ATTERBURY STIMSON, Professor of Surgery, Cornell University Medical College; Surgeon-in-Chief, New York Hospital.

CLAUDE E. FORKNER, Associate Professor of Clinical Medicine, Cornell University Medical College; Attending Physician, New York Hospital.

HAROLD J. STEWART, Associate Professor of Medicine, Cornell University Medical College; Attending Physician, New York Hospital.

JOHN M. PEARCE, Professor of Pathology, Cornell University Medical College; Professor of Pathology in Surgery, Cornell University Medical College; Surgical Pathologist, New York Hospital.

MARY A. ENGLE, Instructor in Pediatrics, Cornell University Medical College.

DANIEL S. LUKAS, Instructor in Medicine, Cornell University Medical College.

ISRAEL STEINBERG, Assistant Professor of Clinical Medicine, Cornell University Medical College; Assistant Professor of Clinical Radiology, Cornell University Medical College; Assistant Attending Radiologist, New York Hospital.

JOSEPH F. ARTUSIO, Assistant Professor of Surgery (Anesthesia), Cornell University Medical College; Anesthetist-in-Charge, New York Hospital.

WEDNESDAY, JUNE 3—2 TO 4 P. M.

CARCINOMA OF THE CERVIX

Introduction. R. GORDON DOUGLAS.

Diagnosis.
GEORGE PAPANICOLAOU, CARL T. JAVERT, and WILLIAM F. FINN.

Classification of Stage of the Disease. WILLIAM F. FINN.

Psychological Management. ARTHUR M. SUTHERLAND.

Pretreatment Investigations. WILLIAM F. FINN.

Treatment.
R. GORDON DOUGLAS, HARRY W. BURNETT, THOMAS L. BALL, CARL T. JAVERT, ROY W. BONSNES, and WILLIAM F. FINN.

Operation: Radical Hysterectomy and Pelvic Lymphadenectomy. R. GORDON DOUGLAS.

Participants:

R. GORDON DOUGLAS (Moderator), Professor of Obstetrics and Gynecology, Cornell University Medical College; Obstetrician and Gynecologist-in-Chief, New York Hospital.

CARL T. JAVERT, Associate Professor of Obstetrics and Gynecology, Cornell University Medical College; Attending Obstetrician and Gynecologist, New York Hospital.

WILLIAM F. FINN, Assistant Professor of Clinical Obstetrics and Gynecology, Cornell University Medical College; Associate Attending Obstetrician and Gynecologist, New York Hospital.

THOMAS L. BALL, Assistant Professor of Clinical Obstetrics and Gynecology, Cornell University Medical College.

ROY W. BONSNES, Associate Professor of Bio-Chemistry in Obstetrics and Gynecology, Cornell University Medical College.

HARRY W. BURNETT, Assistant Professor of Radiology, Cornell University Medical College; Assistant Attending Radiologist, New York Hospital.

ARTHUR M. SUTHERLAND, Assistant Professor of Clinical Medicine, Cornell University Medical College.

GEORGE PAPANICOLAOU, Emeritus Professor of Anatomy, Cornell University Medical College.

THURSDAY, JUNE 4—10 TO 12 A. M.

ESSENTIAL HYPERTENSION

Definition and Differential Diagnosis. DAVID P. BARR.

Factors in the Pathogenesis: Nervous System; Endocrine Influences, and Renal and Hepatic Circulation. EPHRAIM SHORR.

Clinical Picture with Case Presentation. DAVID P. BARR.

Medical Treatment: Rice, Salt-Free, and Other Diets; Hexamethonium; Apresoline; Veratrum Alkaloids; Sedatives. RICHARD E. LEE.

Rationale and Results of Sympathectomy. BRONSON S. RAY.

Operation: Thoracolumbar Sympathectomy. BRONSON S. RAY.

Participants:

DAVID P. BARR (Moderator), Professor of Medicine, Cornell University Medical College; Physician-in-Chief, New York Hospital.

RICHARD E. LEE, Surgeon, U. S. Public Health Service; Instructor in Medicine, Cornell University Medical College; Physician to Out-Patient Department, New York Hospital.

BRONSON S. RAY, Professor of Clinical Surgery (Neurosurgery) Cornell University Medical College; Attending Surgeon, New York Hospital.

EPHRAIM SHORR, Associate Professor of Medicine, Cornell University Medical College; Attending Physician, New York Hospital.

THURSDAY, JUNE 4—2 TO 4 P. M.

TUMORS OF THE BREAST

Introduction. WILLIAM A. COOPER.

History. EUGENE J. COHEN.

Physical Examination. WILLIAM A. COOPER and HERBERT J. CONWAY.

Laboratory Aids. JOHN M. PEARCE.

Treatment: Operative; X-Ray Therapy; Endocrine Therapy. HERBERT J. CONWAY, CRANSTON W. HOLMAN, HARRY W. BURNETT, and EUGENE J. COHEN.

End Results. WILLIAM A. COOPER.

Operation: Halsted Procedure. CRANSTON W. HOLMAN.

Summary. WILLIAM A. COOPER.

Participants:

WILLIAM A. COOPER (Moderator), Associate Professor of Clinical Surgery, Cornell University Medical College; Assistant Attending Surgeon, New York Hospital.

HERBERT J. CONWAY, Associate Professor of Clinical Surgery, Cornell University Medical College; Attending Surgeon, New York Hospital.

EUGENE J. COHEN, Assistant Professor of Clinical Medicine, Cornell University Medical College; Assistant Attending Physician, New York Hospital.

JOHN M. PEARCE, Professor of Pathology in Surgery, Cornell University Medical College; Attending Pathologist, New York Hospital.

HARRY W. BURNETT, Assistant Professor of Radiology, Cornell University Medical College; Associate Attending Radiologist, New York Hospital.

CRANSTON W. HOLMAN, Associate Professor of Clinical Surgery, Cornell University Medical College; Associate Attending Surgeon, New York Hospital.

PRESIDENTIAL INAUGURAL PROGRAM

102nd Annual Meeting

American Medical Association

TUESDAY NIGHT, JUNE 2, 1953

GRAND BALLROOM, HOTEL COMMODORE
NEW YORK CITY

8-8:30 p. m. The "Dr. Christian" radio show (to be transcribed and rebroadcast by CBS on Wednesday night, June 3)

8:30-9 p. m. Music by the Doctors' Symphony Orchestra of New York and introduction of guests

9-9:30 p. m. The Presidential Inaugural Ceremony (to be transcribed and rebroadcast by ABC on Wednesday night, June 3)

Presentation of Distinguished Service Award

9:30 p. m. The President's Reception and Ball (to be held in the adjoining East Ballroom)

All physicians and guests planning to attend the inaugural program are urged to be in their seats in the Grand Ballroom by 7:45 p. m.

DELAYED BROADCAST OF PRESIDENTIAL INAUGURAL

More than 300 radio stations of the American Broadcasting Company network will carry the inauguration of Dr. Edward J. McCormick of Toledo, Ohio, incoming President of the American Medical Association, in a delayed broadcast on Wednesday night, June 3. The program will be broadcast coast to coast in the United States and will also be carried in Alaska and Hawaii. The time of the broadcast, subject to some local variations because of station program schedules, will be 10 to 10:30 p. m. in the eastern time zone and 9 to 9:30 p. m. in all other time zones.

The actual inaugural ceremony will take place Tuesday night, June 2, at the Hotel Commodore in New York City during the 102nd Annual Meeting of the A. M. A. The delayed broadcast on the following night will be necessary, however, because radio and television time on Tuesday night will be almost completely taken over by special news and film programs on the coronation of Queen Elizabeth.

As an additional radio feature this year, the popular "Dr. Christian" program, starring the veteran actor, Jean Hersholt, will be staged and transcribed in the Grand Ballroom of the Hotel Commodore on Tuesday night as the first half of an entertainment hour preceding the inaugural ceremony. The Columbia Broadcasting System will rebroadcast the "Dr. Christian" program on Wednesday night.

Principal feature of the ABC inaugural program will be the presidential address by Dr. McCormick. Also taking part will be Dr. Louis H. Bauer, retiring President of the A. M. A., who will deliver a brief farewell address, and Dr. Dwight H. Murray, Chairman of the Board of Trustees, who will give the introductory remarks, present the Past-President's Medal to Dr. Bauer, and administer the oath of office to Dr. McCormick. Dr. James R. Reuling, Speaker of the House of Delegates, will preside over the ceremony.

All physicians who will not be attending the A. M. A. meeting in New York are urged to contact their local ABC and CBS radio stations, or to check the program listings in their local newspapers, for the exact broadcast times of the inaugural and "Dr. Christian" programs on Wednesday night, June 3.

BANQUET FOR HOUSE OF DELEGATES

The Local Committee on Arrangements for the New York Meeting announces that a banquet for the Officers and members of the House of Delegates of the American Medical Association will be held in the Grand Ballroom of the Waldorf-Astoria, Monday evening, June 1. There will be a hospitality hour at 6:30 p. m., followed by dinner. Formal invitations will be issued in the near future. Delegates and officers are requested to keep Monday night reserved for this occasion.

A. M. A. VIEWS ON S. 106 AND S. 1514

The Honorable Joseph R. McCarthy, Chairman,
Committee on Government Operations,
The United States Senate,
Washington 25, D. C.

Dear Sir:

I would like to take this opportunity, on behalf of the American Medical Association, to submit for your consideration our views concerning S. 106 and S. 1514, 83d Congress, which are currently being studied by your Committee.

It is our understanding that S. 106 would authorize the establishment of a Commission to be known as the "Commission on Organization of the Executive Branch of the Government," which would be directed to study the present organization and operations of the Executive Branch of the government and report its findings and recommendations by Feb. 1, 1954. It is our belief that a thorough survey of the Executive Branch of the government is in order and that if properly conducted it could result in the elimination of considerable overlapping of activities and waste of funds.

The primary interest of the Association, however, is with S. 1514 which would authorize a study and report concerning all of the present activities in which federal aid is extended to state and local governments, with particular reference to health, education and welfare. This study would involve matters which have for many years been of vital concern to the medical profession because of repeated attempts at governmental encroachment in the field of health. It is the belief of the Association that such a survey is imperative to determine whether there is justification for federal aid in the various fields in which such assistance has been extended during the past few years, whether such activities should be limited and if so to what extent, and, finally, to permit an over-all appraisal of the ability of the federal government to finance activities of this nature.

For these reasons I should like to urge, on behalf of the American Medical Association, that the subject legislation be reported favorably by your Committee.

Sincerely yours,

GEORGE F. LULL, M.D.

Secretary and General Manager
American Medical Association

BOOKLET ON MEDICAL EDUCATION

Current statistics on medical education in the United States have been compiled by the American Medical Association in a pocket-sized booklet entitled "Factbook on Medical Education." The information is based on a report by the Council on Medical Education and Hospitals made during the academic year 1951-1952. Written in a question-and-answer style, the booklet contains data on enrollments, financial support, faculty, and new medical schools. The booklet will be distributed to state and county medical society officers, A. M. A. delegates and officers, newspaper and magazine writers, and allied health organizations. Additional copies will be available for distribution by state and county medical societies.

SUPPLEMENT TO LIST OF FILMS FOR TELEVISION

The Committee on Medical Motion Pictures has announced the publication of a supplement to the list of health education motion pictures cleared for use on television. This supplement lists 38 motion pictures that have been cleared for television use since publication of the original list in 1951. Copies may be obtained by writing to the Committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn Street, Chicago 10.

STATE MEDICAL LEGISLATION

Arizona

Bills Enacted.—H. 141, has become Ch. 78 of the Laws of 1953. It directs a coroner to summon a **qualified physician to examine a dead body** and, if necessary, conduct an autopsy and give an opinion as to the medical cause of death, unless such medical examination has already been performed and such opinion has already been rendered. All statements shall be signed by a qualified physician. H. 142, has become ch. 79 of the laws of 1953. It requires **hospitals to report to the coroner** all information they have regarding hospital deaths where there is no attending physician and also to report when certain circumstances suggest to the physician in attendance that the death was caused by other than natural causes. When making an investigation of the facts and circumstances surrounding the death, the coroner shall direct the medical examiner or any other qualified physician to make such examination of the body as may seem necessary including, if needed, an autopsy to determine the medical cause of death.

Arkansas

Bills Enacted.—S. 144, has become act No. 415 of the acts of 1953. It provides general amendments and revision of the **Food, Drug and Cosmetics Act.** S. 447, has become act No. 564 of the acts of 1953. It provides an appropriation for the payment of **fees for services to licensed physicians** for examination of any person applying for assistance under the assistance program of the state. The medical licensing board is directed to submit an **approved list of doctors** to the Arkansas State Department of Public Welfare and no fee for service rendered shall be paid to any doctor who has not been licensed by one of these state medical boards.

California

Bill Introduced.—A. 2105, to amend the Business and Professions Code, proposes to prescribe certain minimum conditions to be met by schools **teaching physician's and surgeon's subjects to drugless practitioners.** S. J. R. 32, proposes to request the Congress of the United States to enact legislation for the **control of dangerous drugs** similar to the California Dangerous Drug Act. S. J. R. 33, proposes to memorialize the Congress of the United States to increase the staff of federal enforcement agents and the number of border inspections and to confer authority upon state and local narcotic enforcement officers in border cities and counties to conduct searches and make inspections at border areas especially with reference to **interstate use of heroin, marihuana and barbiturates.** S. J. R. 34, proposes to memorialize the Congress of the United States to amend the **narcotic drugs** import and export act, so as to increase the penalties for second and subsequent narcotic offenders. S. 1769, to amend the business and professions code relating to **dispensing opticians,** proposes to authorize the granting of certificates to persons who have had five years experience and have been licensed for such period as a dispensing optician in some other state and who file an application and an affidavit from three physicians and surgeons licensed by the board of medical examiners who specialize in the treatment of the eye, stating and certifying according to their own knowledge that the applicant is of good moral character and is fully competent and qualified to accurately fill prescriptions for ophthalmic lenses and to take physical measurements and fit and adjust lenses or frames.

Bills Enacted.—A. R. 91, was adopted March 19, 1953. It directs the standing public health committee to undertake an investigation to ascertain, study, and analyze **all facts relating to encephalitis,** including, but not limited to, the sources, causes, and effects of encephalitis, the means of reducing the incidence of encephalitis, and what, if any, legislation is necessary or desirable to protect the people of this state from that disease. A. 1373, has become ch. 92 of the laws of 1953. It amends the business and profession code relating to reciprocity certificates by providing that any **applicant for a reciprocity certificate** need not have completed his year's internship prior to the issuance to him of a license in some other state but that **one year's internship** must have been completed by the person who is applying for a reciprocity certificate. A. 1393, has become ch. 101 of the laws of 1953. It amends the business and professions code by adding a provision that physicians with valid visitors' visas issued by the United States of America who seek **postgraduate study in an approved medical school** as a fellow, instructor, or exchange professor, may, after proper application to and approval by the board and receipt of an appointment from the dean of the approved medical school, be permitted by the board to participate in the professional activities of the department in the approved medical school to which they are appointed under the direction of the chairman of the department. Such permission granted by the board shall be for a period not in excess of one year and must be renewed semiannually. No such visiting physician may treat the sick or afflicted or receive compensation therefore or otherwise engage in or offer to engage in the practice of medicine except to the extent indicated by this law. A. 1892, was approved April 3, 1953. It requires persons operating any factory or shop in which five or more persons are employed to at all times maintain on the premises a **medical or surgical chest.** This chest shall contain an adequate assortment of absorbent cotton, sterilized gauze, plain and medicated, adhesive plaster, cotton and gauze bandages, one tourniquet, one pair of scissors, one pair of tweezers, one jar of carbolized petrolatum, one bottle of antiseptic solution, and one first aid manual, all of which shall cost not less than $6. A. 1917, has become ch. 34 of the laws of 1953. It requires **hospitals and physicians to report to the chief of police** information relating to persons suffering from any wound or other injury inflicted by his own act or by the act of another by means of a knife, gun, pistol, or other deadly weapon or in cases where

Prepared by the Bureau of Legal Medicine and Legislation.

injuries have been inflicted upon any person in violation of any penal law. S. 1437, has become ch. 114 of the laws of 1953. It amends the law relating to **narcotic prescriptions** by authorizing certain combinations of codeine preparations to be dispensed upon an oral prescription which must be reduced to writing within 24 hours.

Connecticut

Bills Introduced.—H. 284, to amend the law relating to drugs which may be sold only on a physician's prescription, proposes to eliminate from such list **sulfanilamide** and also to eliminate sulfanilamide from the list of drugs the prescriptions for which may not be refilled except upon order of a practitioner. H. 435, to amend the law relating to **interns and residents** in Connecticut hospitals, proposes that the Connecticut Medical Examining Board may, at its discretion and subject to such regulations as it may prescribe, issue permits to persons otherwise qualified to be licensed to practice medicine in this state except that they do not meet the residence or citizenship requirements for such license or are graduates of foreign medical schools not accredited in this state, to serve as interns or residents in hospitals in this state for the purpose of extending their education. H. 1602, proposes an express **tax exemption to Connecticut hospitals** operating without profit. S. 886, proposes to amend the workmen's compensation act in relation to **free choice of physicians.** It also proposes that the employer shall post in a conspicuous place in his establishment a list of not less than 15 physicians and surgeons skilled in the various specialties of medicine and surgery, from which the injured employee may select the physician and surgeon to treat the injury, and the employer shall in addition furnish such medical or surgical and/or hospital or nursing service as the physician so chosen shall deem reasonable or necessary.

Delaware

Bills Introduced.—H. 307, proposes appropriations for the state board of health for the purpose of carrying out a **state-wide chest x-ray survey.** H. 356, proposes that until May 1, 1955, the medical council shall have the power to issue **temporary emergency certificates** of 12 months' duration, **to physicians** licensed in a state of the United States other than Delaware, if they shall be found qualified to practice as such in the state during a serious public emergency. The holder of such temporary certificate would be privileged to practice his profession subject to the laws of the state and to such regulations that the medical council may impose. S. 303, proposes the establishment and creation of a **tuberculosis commission** to promote a careful study of conditions regarding tuberculosis throughout the state to educate public opinion as to causes and prevention of tuberculosis, to arouse general interest in securing adequate provisions for the proper care of tuberculosis patients in their homes and by means of sanitariums, and to send indigent tuberculosis patients requiring treatment to sanitariums for such treatment.

Florida

Bills Introduced.—H. 38, proposes to authorize any **hospital** or institution of like nature to have a **lien** in the amount of all reasonable unpaid charges upon any settlement of a claim made to any patient by reason of injury sustained as a result of which such patient was confined to and cared for by the hospital. H. 75, proposes the enactment of a **healing arts identification act** providing that every person licensed to practice the healing art shall, in the professional use of his name on any sign, letterhead, bill head, advertising material, or the like, designate the kind, branch, or system of the healing art which he is by his license permitted to practice. The proposal then lists in detail the various methods in which such designation must be accomplished. H. 138, proposes that any person acting as an attending practitioner who is authorized to practice medicine, osteopathic medicine, chiropractic, naturopathy, or veterinary medicine shall report immediately to the state board of health of the **diagnosis or suspicion of the existence of diseases which are communicable among humans or from animals to humans.** The state board of health would be authorized to declare what such communicable diseases are. S. 26 and H. 69, propose an appropriation to the state board of control for the construction, equipping, and furnishing of a **medical and nursing building** at the University of Florida. S. 102, proposes that every person lawfully engaged in the practice of the healing art shall on or before Jan. 1 of each year apply to the secretary of the state board of health for a certificate of registration and shall pay a $1 fee. Failure to apply for such **annual registration** would constitute a misdemeanor. S. 103, proposes to amend the law relating to **physical therapy** by defining physical therapy as the treatment of disability, injury, and disease by nonmedical means, comprising the use of massage, therapeutic exercise, and rehabilitation and the physical, chemical, and other properties of heat, light, water, and electricity (except roentgen rays, radium, and electrosurgery). Exempt from the physical therapy law would be naturopaths, physicians, osteopaths, chiropractics, masseurs, and any other school of healing licensed by the state. S. 104, proposes to require every graduate of a medical school or college, whether approved by the board or not, and every person practicing as a **resident physician, assistant resident physician, or intern** in any hospital in the state, to register with the state board of health showing the date upon which he started to practice. The proposal would also require every hospital employing a resident physician, an assistant resident physician, or any intern to furnish the state board of health with a list of such employees. Such person would not be permitted to act as a resident physician, assistant resident physician, or intern for a period of more than three years unless he becomes duly licensed as a physician by the board.

Hawaii

Bills Introduced.—H. 893 and S. 567, propose to make it the duty of every physician and surgeon attending or treating a **case of knife wound, bullet wound, gunshot wound, powder burn,** or any injury caused by the use of violence or sustained in a suspicious or unusual manner to report such case to the chief of police. H. 894 and S. 565, propose to fix a fine as punishment against a practitioner of the healing arts who fails to **notify the coroner** or deputy coroner of the known facts concerning the time, place, manner, and circumstances of deaths coming within the jurisdiction of the coroner. S. J. R. 34, proposes to authorize the director of institutions to employ such **psychiatrists as may** be needed from time to time by the territorial hospital on a contractual basis, said contracts being subject to approval by the governor. H. 855, proposes to make it unlawful to sell or otherwise dispense **drugs, medicines, prophylactics, or chemicals** by means of any mechanical device or vending machine. S. 448, proposes an appropriation for the employment of personnel and the purchase and renovation of equipment and facilities necessary for the treatment of **drug addicts** confined in the territorial hospital.

Illinois

Bills Introduced.—H. 483, to amend the workmen's compensation act, proposes to require an employer to name a panel of **competent and impartial physicians from which the employee shall have the right to choose** one as his attending physician. H. 484, to amend the workmen's occupational disease act, proposes to require employers to name a panel of **competent and impartial physicians from which the employee shall have the right to choose** one as his attending physician. S. 290, proposes the creation of a **tuberculosis commission** to study the problem of unified tuberculosis control and treatment throughout the state, the scheme of organization of services, and methods of financing, with a view of recommending to the next general assembly the most [illegible]acious method of organization and financing tuberculosis control and treatment program.

Indiana

Bill Enacted.—H. 19, has become ch. 161 of the laws of 1953. It provides that in any action to determine who is the father of any child, the court, on motion of either party, shall order the mother, her child, and the defendant, to submit to one or more **grouping tests by a duly qualified physician** to determine whether the defendant can be excluded as being the father of the child, and the results of such tests may be received in evidence only in cases where definite exclusion is established.

Kansas

Bill Enacted.—S. 287, was approved April 2, 1953. It provides that no person who, while a patient in any state hospital, received **psychiatric shock treatment,** and as a result thereof suffered physical or mental injury or death, shall have a cause of action for damages against any physician or technician of the hospital unless injury or death shall have resulted from the gross negligence of such physician or technician giving or supervising the giving of such shock treatment, provided, that approved and accepted methods and techniques of administering such shock treatments have been used.

Maine

Bills Enacted.—H. 232, was approved March 31, 1953. It amends the **chiropractic act** by providing that on and after the calender year 1957 candidates for licensure shall be required to present transcripts from an accredited college or university certifying that they have completed one year of preprofessional work, two subjects of which must be English and biology, or otherwise satisfy the members of the board of sufficient prior academic education. H. 416, was approved March 31, 1953. It amends the **narcotic drug act** by providing that in all cases of conviction other than for a first offense, the imposition of execution of sentence shall not be suspended and probation or parole shall not be granted until the minimum imprisonment provided for the offense shall have been served.

Maryland

Bills Introduced.—H. R. 71, proposes the appointment of a commission to make a thorough and complete reinvestigation and reevaluation of the **medical care program for indigents** throughout the state. H. 854, proposes to require applicants for a marriage license to present a statement signed by a **physician licensed to practice medicine in Maryland** or in any other state or territory of the United States or the District of Columbia, that the applicant has submitted to a standard laboratory blood test and in the opinion of such physician the person is not infected with **syphilis in a communicable stage.**

Bill Enacted.—S. 185, has become ch. 268 of the laws of 1953. It amends the law relating to **chiropractors** by authorizing the examining board to admit to the qualifying examination graduates of a chiropractic school or college the curriculum, teaching standards, and facilities of which are approved by the board, and in which the minimum course for the granting of a degree of doctor of chiropractic is four academic years comprising not fewer than 4,000-sixty-minute hours of resident study; and which shall have required for entrance the completion of two full years of satisfactory academic college work in a college or university approved by the Maryland Department of Education.

Massachusetts

Bill Introduced.—H. 2514, proposes the creation of a board of registration of chiropractors and proposes to **define chiropractic** as the science of locating and removing by hand adjustment only, interference with the transmission of expression of nerve force in the human body by the correction of misalignment of subluxations of the vertebral column. It excludes operative surgery, prescription, or use of drugs or medicines, or the practice of obstetrics, except that the x-ray and analytical instruments may be used solely for the purpose of examination.

Bill Enacted.—H. 582, has become ch. 181 of the laws of 1953. It directs the city manager of Worcester to appoint a commissioner of health for that city who shall be a citizen of the United States, who has received both the degree of doctor of medicine from a **medical school classified by the American Medical Association as a grade A school** and the degree in public health, and who has had practical experience in public health work.

Minnesota

Bills Introduced.—H. 1922, proposes the creation of a commission to make a survey of the existing public, private, state, and local facilities for the care and treatment of the **mentally defective** and deficient and to make recommendations relative to the need for additional facilities. H. 1923, proposes to direct the legislative research committee to make a study of the **county coroner system** in the state with a view to its improvement or abolishment and replacement by a system which will more capably serve the purposes for which it has been established. S. C. R. 31, proposes the creation of a commission to **investigate the coroner system** in the state.

Montana

Bill Enacted.—H. 74, was approved March 8, 1953. It provides regulations for the **licensing of practical nurses and professional nurses.**

Nevada

Bills Enacted.—S. 42, has become ch. 269 of the laws of 1953. It requires all **physicians to report** immediately to the state board of health the name of every person diagnosed as a **case of epilepsy.** S. 128, was approved March 30, 1953. It amends the **basic science act** by requiring applicants to present evidence that they are citizens of the U. S. or citizens of Canada who have declared their intentions of becoming citizens of the U. S. S. 175, was approved March 30, 1953. It amends the **medical practice act** by authorizing applicants for a license to be admitted to the examination if they are citizens of Canada who have declared their intentions of becoming citizens of the U. S.

New Hampshire

Bill Introduced.—S. 67, proposes that the **records** of residents of the state who have voluntarily become patients of the division on alcoholism **shall be kept confidential and not divulged** except that the director may release such records to hospitals, institutions, and physicians whenever in his discretion the information may assist in further treatment of a voluntary patient.

Bill Enacted.—S. J. R., was approved March 30, 1953. It provides an appropriation for the maintenance of **diagnostic laboratories.**

New Jersey

Bills Introduced.—A. 380, proposes the enactment of a **bioanalytical laboratory and laboratory director act** whereby the board of medical examiners would be authorized to register and license bioanalytical laboratories and bioanalytical laboratory directors. A. 526, proposes to require every physician within a reasonable time after determining that any person is suffering from a **heart condition or other physical or mental condition which is likely to recur without warning** and may be the cause of a motor vehicle accident while the person suffering from same is operating a motor vehicle, to report such determination to the director of the division of motor vehicles. A. 623, proposes regulations for the licensing of **professional and practical nurses.** S. 299, to amend the workmen's compensation act, proposes that an injured employee may, when such care is required, select to treat him **any duly licensed physician.**

New Mexico

Bills Enacted.—H. 35, was approved March 3, 1953. It is a nursing practice act providing for the examining and licensing of persons desiring to practice **professional nursing or practical nursing.** H. 94, was approved March 20, 1953. It repeals and reenacts the law relating to the licensing of **physical therapists** by creating a physical therapists licensing board. S. J. M. 5, was adopted March 12, 1953. It resolves that the various **state licensing boards** in the state be memorialized to administer the provisions of the law establishing such boards in a fair and reasonable manner and to admit to practice and license persons qualified under reasonable standards.

New York

Bill Enacted.—A. 1536, has become ch. 247 of the laws of 1953. It amends the social welfare law by **defining a dispensary** to be any person, firm, or corporation, institution, association, or agent, except an outpatient department of an incorporated nonprofit hospital, the state departments of health, mental hygiene, and education, or an institution subject to the jurisdiction of such state departments, including a psychiatric clinic as defined in subdivision 17 of the mental hygiene law, and local department of health or board of education or a health officer, whose purpose it is, either independently or in connection with the other purpose, to furnish, at any place or places, to persons nonresident therein, either gratuitously or for a compensation determined without reference to the value of the thing furnished, medical or surgical advice or treatment, medicine or apparatus, provided, however, that the moneys used by and for the purposes of said dispensary shall be derived wholly or in part from trust funds, public moneys, or sources other than the persons constituting said dispensary and the persons actually engaged in the distribution of charities of said dispensary.

North Carolina

Bills Introduced.—H. 1020, proposes to authorize the board of pharmacy to grant permits to legally registered practicing **physicians to conduct drugstores and pharmacies** in villages up to 800 inhabitants. H. 1089, proposes to authorize the North Carolina medical care commission to make **loans to student nurses** conditioned upon an agreement with the student nurse that the recipient shall, after graduation and license to practice as a nurse has been received, practice her profession in a rural area of North Carolina until the loan has been paid or fully liquidated. H. 1157, proposes the establishment of a **supervisor of alcohol education** whose duty it would be to supervise and promote thorough and scientific instruction in the public schools of the nature and effect of alcoholic drinks and narcotics. H. 1159, to amend the medical practice act, proposes to authorize the revocation of a license of a person who is habitually addicted to the use of **marihuana, barbiturates, demerol, or other habit-forming drug** or derivative of such drug or who has been adjudicated a mental incompetent or whose mental condition renders him unable safely to practice medicine. S. 439, proposes to authorize the employment of a committee to investigate, study and make recommendations concerning the advisability and feasibility of establishing a program of **nurse training** at one or more of the several state-supported educational institutions.

North Dakota

Bill Enacted.—H. 803, approved March 17, 1953. It provides that an employer shall bear **the cost of any examination** or furnishing of records which may be required of any employee or a prospective employee.

Ohio

Bills Introduced.—H. 31, proposes that each licensed physician in good professional standing who appears as an **expert witness** in any proceeding before the industrial commission or before the board of claims may implement his testimony by the use of such facilities of the medical school of the Ohio State University as the dean of the medical school shall designate to be used for such purpose. H. 494, proposes that the executive secretary of a county child welfare board, upon the advice of one or more reputable practicing physicians, may **consent to medical, dental, and surgical care,** including the administration of anesthetic, inoculations, immunizations, or other care as appears to be necessary for any child who is a ward of such board or department. H. 610, proposes to authorize the use in court under certain circumstances of **blood grouping tests** made of the parties involved in any paternity hearing. H. 644, proposes to create a state board to regulate and license **practical nurses.** H. 666, proposes a revised law relating to **licensure of hospitals** and other institutions. H. 784, proposes to require a physician in attendance to report to the industrial commission within 48 hours after examining any patient who he believes has been injured during the course of employment or who died of injury received during the course of employment. S. 185, proposes a revised law for the registration and licensing of **professional and practical nurses.**

Oklahoma

Bills Introduced.—H. 953, proposes to make it unlawful for any person, firm, corporation, or partnership to solicit the sale of spectacles or eye glasses and proposes to make it unlawful for any optometrist, physician, or other person to receive or accept any **rebates, "kick-back," or rewards** or premiums from any optical company or any other person, firm, or corporation dealing in optical goods. H. 1099, to amend the **chiropractic practice act,** proposes eight new grounds upon which chiropractic licenses may be revoked or suspended by the board of examiners.

Oregon

Bills Enacted.—H. 401, has become ch. 203 of the laws of 1953. It provides that after March 1, 1958, no applicant shall be examined and no license shall be issued unless the applicant demonstrates by evidence satisfactory to the **board of basic science examiners** that he has successfully completed the two year study of liberal arts or sciences in a college or university accredited by either the Northwest Association of Secondary and Higher Schools or a like regional association, or in any college or university in Oregon approved for granting degrees by the Oregon State Board of Education. S. 78, has become ch. 183 of the laws of 1953. It amends the law relating to **osteopathy** by providing, among other things, that the aiding or abetting in procuring of an abortion unless done for relief of a woman who appears in peril because of her pregnant condition and after due consultation with another duly licensed osteopathic or medical physician and surgeon who is not an associate or relative of the osteopathic physician and surgeon and who agrees that an abortion is necessary shall constitute grounds for revocation of a license. The law further provides that the record of the consultation shall be in writing and shall be maintained in the hospital where the consultation occurred or in the offices of all of the physicians and surgeons participating in the consul-

tation for a period of at least three years after the date of the abortion. Mental illness is also stated as ground for revocation of a license. S. 80, was approved March 21, 1953. It amends the medical practice act relating to **designations which may follow a practitioner's name** by providing that upon the death of any person duly licensed by any board empowered to license a practitioner of the healing arts or the corrective art of optometry the executors of his estate or his heirs assigned, associates, or partners may retain the use of the deceased's name where it appears other than as a part of an assumed name for no more than one year after the death of such person or until his estate is settled whichever is sooner. S. 85, has become ch. 143 of the laws of 1953. It provides that each applicant for a marriage license shall file with the clerk a **medical certificate signed by a physician licensed by the state board of medical examiners** and stating that in the opinion of such physician the applicant is not infected with syphilis in a communicable stage and is free from other communicable venereal diseases, epilepsy, feeblemindedness, mental illness, drug addiction, or chronic alcoholism. S. 86, was approved March 24, 1953. It amended the **medical practice act** in certain particulars among which is the inclusion in the list of examination subjects of the subjects of biochemistry, gynecology, pharmacology, pathology, bacteriology, public health, preventive medicine, medical jurisprudence, and pediatrics.

Pennsylvania

Bills Introduced.—H. 676, proposes to make it unlawful for any employer to require any employee or applicant for employment to pay **the cost of a medical examination** or the cost of any records required by the employer as a condition of employment. H. 678, proposes an appropriation to the department of welfare for the payment of expenses of maintenance and operation necessary for the proper conduct of work incident to the **silicosis clinics** established or to be established at the state owned medical and surgical hospitals. H. 721, proposes to require every **physician,** osteopathic physician, or other persons practicing the healing art **to report** to the department of revenue the name and address of every patient or person consulting him who is suffering from any kind or type of **heart disease** which may or is likely to cause such person to be seized with a heart attack or suffer syncope while operating a motor vehicle. H. 881, proposes the establishment within the department of health of **a public laboratory for the purpose of rendering assistance to the coroners** of the commonwealth in their investigation of cases where death is sudden or violent and of a suspicious nature and in rendering assistance in all cases where autopsies are necessary and for the purpose of rendering toxicological examinations of food stuffs for the department of health in connection with outbreaks of gastroenteritis due to the ingestion of contaminated food. The laboratory would contain such equipment as deemed necessary by the secretary of health for rendering such pathological and toxicological service to coroners and to the department itself. H. 937, proposes the enactment of a **practical nurse law.** H. 961, proposes to make it unlawful for any employer to require an employee or applicant for employment to pay **the cost of a medical examination** or the cost of furnishing any records required by the employer as a condition of employment. H. 989, to amend the law relating to certain physical examinations in the public or parochial schools, proposes **to define visual examiners** as including either a physician legally qualified to practice medicine in the commonwealth and recognized as an ophthalmologist or an optometrist legally qualified to practice optometry in the commonwealth who has been approved by the secretary of health. H. 997, proposes the enactment of a **practical nurse law** and defines practical nursing as the performance of such duties as are required in the physical care of a patient and in carrying out of medical orders as prescribed by a licensed physician requiring an understanding of nursing but not requiring professional nursing service. S. 388, proposes the creation of a commission for the purpose of making a complete study of the grants made by the commonwealth to **state-aided medical and surgical hospitals** and for determining the most equitable method of calculating and providing such grants.

Rhode Island

Bills Introduced.—H. 840, proposes the creation of a special commission to study methods of improving, strengthening, expanding, and financing the local public health services with the view of establishing **district health departments** in the various areas of the state. S. 271, proposes to make it unlawful for any employer to deduct from the wages of any employee or prospective employee any sum to defray the **cost of a medical examination** of the employee or prospective employee when such examination is made at the request or direction of the employer by a physician designated by the employer as a condition of entering employment.

South Carolina

Bills Introduced.—H. 1245, proposes to direct the department of education to create a division for **education for the prevention of alcoholism,** which division shall be responsible for activating and implementing an adequate alcoholic education program in the public schools. H. 1443, proposes to make it unlawful for any employer to require any employee or applicant for employment to pay **the cost of a medical examination** or the cost of furnishing any records required by the employer as a condition of employment. S. 141, proposes to direct the South Carolina Mental Health Commission to appoint a director of adult **education for the prevention of alcoholism,** who shall be responsible for activating and implementing an adequate alcoholic education program for the citizens of the state above high school age.

South Dakota

Bills Enacted.—H. 598, was approved March 11, 1953. It provides an appropriation for the payment of necessary services and expenses incidental to the operation of the state department of health of a program of **hospital construction and of inspection and licensing** of hospitals and related institutions. S. 132, approved March 13, 1953. It requires persons licensed by the state board of medical examiners or by the state board of osteopathic examiners to record their licenses with the register of the deeds in the county in which they reside and also to pay **an annual registration fee** to the state board of medical and osteopathic examiners on or before the first day of January.

Tennessee

Bills Introduced.—H. 538, proposes to authorize municipal health officers or their deputies to authorize a quarantine of certain **persons infected with tuberculosis** who are subjecting the public and minor children to such infection. H. 559, proposes to make it unlawful for any employer to require any employee or applicant for employment to pay **the cost of medical examination** or the cost of furnishing any records required by the employer as a condition of employment. H. 564, proposes that **when any person dies in a doctor's office** of the state or any clinic, hospital, or institution, it shall be unlawful for any doctor, nurse, attendant, orderly, janitor, or bookkeeper or anyone to call any undertaker without first making every effort to contact some relative of the deceased person and first giving the next of kin or relative the right to call an undertaker or crematory of their choice. H. 905, proposes the creation within the division of medical care of a division for hospital service for the indigent for the purpose of providing **hospitalization for medically indigent persons** who are residents of the state, the hospital charges to be limited to the nonprofit basic costs of the hospitalization. H. 1065, proposes to require every physician or other person who makes a diagnosis of or treats or prescribes for **a case of tuberculosis** and every superintendent or manager of a clinic, dispensary, or other institution in which there is a case of tuberculosis to report such case immediately to the full-time state municipal district or county health officer having jurisdiction in his or its location. H. 1093, proposes that in a criminal prosecution for driving while under the influence of an intoxicant, results of chemical tests of the blood, urine, or breath to show the amount of alcohol in the defendant's blood at the time alleged shall be admissible in evidence. H. 1232, proposes that any person who has engaged in the **practice of medicine in any rural community** continuously for a period of 25 years wherein his services have been used by the public generally, should be granted authority to continue the general practice of medicine in such community. The proposal authorizes the board of medical examiners to grant a license to any such person as it is the opinion of the general assembly that such period of time, training, and experience is sufficient to qualify a person under the law regulating the granting of a license to practice medicine. S. 454, proposes to prohibit the sale to minors of certain **narcotic drugs** and defines narcotic drugs as including isonipecaine, amidone, isoamidone, keto-bemidone. S. 480, proposes a number of general amendments to the law relating to the **licensing board for the healing arts.** S. 520, proposes the creation of a Tennessee **board of dispensing opticians** to license and examine applicants desiring to practice ophthalmic dispensing. S. 702, to amend the law relating to the **definition of "healing arts,"** proposes that the practice of the healing arts shall be construed as including the adaptation and dispensing of lenses, spectacles, eye glasses, and optical devices to the intended user thereof on a written prescription of a physician or optometrist duly licensed to practice his profession within the state of Tennessee. S. 709, to amend the law relating to chiropractic, proposes to **define chiropractic** as the science of palpating, analyzing, and adjusting the articulations of the human spinal column and adjacent tissues and the application of physiotherapy. Physiotherapy shall include the use of physical, chemical, and other properties of heat, light, water, electricity, massage, and therapeutic exercise. The use of electricity is not permitted for surgical purposes, including cauterization. The use of x-ray may be used for diagnostic purposes only. S. 776, proposes the creation of a Tennessee **board of examiners in psychology** to examine and license psychological examiners and psychologists.

Bill Enacted.—H. 242, has become ch. 27 of the laws of 1953. It provides for the creation of a **department of mental health** to promote the welfare and treatment of the mentally ill.

Wisconsin

Bills Introduced.—A. 524, proposes to amend the workmen's compensation act so as to permit injured employees suffering back injuries **to engage the services of chiropractors** for treatment thereof and to make the employer liable for the reasonable expense incurred by the employee in providing for such services. S. 486, proposes the enactment of a **hospital regulation and approval act** to provide for the development, establishment, and enforcement of standards for the care and treatment of persons in hospitals and standards for instruction and maintenance of hospitals which, in the light of advancing knowledge, will promote safe and adequate treatment of such persons in the hospitals. S. 498, proposes a number of amendments to the medical practice act, among which is a provision authorizing revocation of a license of a person engaging in **conduct unbecoming to a person licensed to practice medicine and surgery or osteopathy and surgery** or conduct detrimental to the best interests of the public. The proposal also contains a provision that when a license or certificate has been revoked by the board it may be restored by the unanimous vote of the members of the board.

MEDICAL NEWS

CALIFORNIA

University News.—Dr. William A. Reilly, director of the radioisotope unit at Fort Miley in San Francisco, is serving as clinical professor of pediatrics at the University of California Medical School, San Francisco.——Construction has begun on the $826,000 Cancer Research Unit, a four story wing at the 20 million dollar medical center, now being built on the Los Angeles campus of the University of California. Expected completion date of the new unit, which is being financed jointly by the U. S. Public Health Service and the university, is January, 1954.

Psychiatric Clinics.—The Southern California Society for Mental Hygiene, 3067 W. Seventh St., Los Angeles, has issued "Community Report #1 on Low-Cost Psychiatric Clinic Care," which reveals that Los Angeles citizens have only two-fifths of the psychiatric clinics they need for treatment of emotional upsets. Los Angeles is said to have only 17 clinics, 12 full-time and 5 part-time; only 2 clinics have evening hours for working families. A reevaluation of clinic financing is called for in the report, which states that nine of the full-time and all part-time clinics are supported by voluntary funds, primarily the Community Chest. Three full-time clinics are under public tax support. The society recommends an immediate action to provide a flexible network of clinics that will prevent fleecing of the public by untrained and unscrupulous "psychoquacks."

COLORADO

Dr. Darley Appointed President of the University.—Dr. Ward Darley, dean of the department of medicine at the University of Colorado, Denver, has been named to succeed Robert L. Stearns, LL.D., as president of the university. Dr. Darley, who has served as medical dean and vice-president of the university since 1949, did part-time teaching at the university, 1931-1943, and became a full-time staff member in 1943. He is president of the Association of American Medical Colleges and is a member of the medical advisory board of the Rockefeller Foundation.

ILLINOIS

Lecture in Winnetka.—On May 13 at 8 p. m. Dr. I. Arthur Mirsky, professor of clinical science and of research psychiatry, University of Pittsburgh School of Medicine, will speak on "Endocrine-Metabolic (Allergy)" at the North Shore Health Resort, 225 Sheridan Road, Winnetka, in the series of lectures on "Understanding Psychosomatic Disorders." All physicians are invited.

Mental Health Week.—The fifth annual observance of Mental Health Week in Illinois will be held May 3-9. The observance is sponsored by the Illinois Society for Mental Health and co-sponsored by the Illinois Department of Public Welfare. Chairman of the week's activities is Dr. Rudolph G. Novick, Chicago, medical director of the Illinois Society for Mental Health. Special community meetings will be held throughout the week. Information may be obtained by writing to: Mental Health, Room 300, 123 W. Madison St., Chicago 2.

Chicago

Cardiac Conference.—Dr. Louis N. Katz, director, cardiovascular department, Medical Research Institute, Michael Reese Hospital, will speak on "The Mechanism of Congestive Heart Failure" at a conference, 11 a. m. to 12 noon, May 8, in the Children's Amphitheater, Cook County Hospital, 700 S. Wood St.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

Lectures in Endocrinology.—The Chicago Medical School, 710 S. Wolcott Ave., offers the following lectures on Tuesdays, 2:30 p. m.:

May 5, The Liver in Endocrine Disturbances, Irwin J. Pincus, Philadelphia.
May 12, Use of Radioiodine in Thyroid Disease, Dwight E. Clark, Chicago.
May 19, Adrenal Glands and Cancer of the Breast, Thomas L. Dao, Chicago.
May 26, Adrenal Cortical Steroids in Treatment of Rheumatic Diseases, Edward F. Rosenberg, Chicago.

Hospital News.—The Chicago League for Nephritic Children has presented a $20,000 check to Michael Reese Hospital for further research in nephritis. The league maintains research programs at Michael Reese and Children's Memorial hospitals, where a fellowship and a technician are supported by contributions.——A new department, said to be the only hospital facility in Chicago devoted exclusively to the study of human reproduction and sex hormone problems, has been established at Michael Reese Hospital under the direction of Dr. Henry S. Guterman, who has been in charge of research in sex endocrinology since 1943. The department is studying means of finding and treating the hormonal causes of infertility and also the manner in which hormones maintain pregnancy.

INDIANA

Five Attain Emeritus Rank.—The Indiana University School of Medicine, Indianapolis, recently conferred emeritus status on the following five faculty members: Dr. Max A. Bahr, a former president of the Indianapolis Medical Society, who has held the rank of professor of neurology and psychiatry since 1939; Dr. M. Joseph Barry, clinical professor of medicine, who served for 12 years as a member of the Indianapolis City Board of Health, and for 8 as its president; Dr. Jane M. Ketcham, clinical professor of medicine since 1934; Dr. William F. Molt, associate professor of bronchoesophagology; and Dr. Roy L. Smith, assistant professor of genitourinary surgery.

IOWA

Society News.—The Iowa Tuberculosis and Health Association, Iowa Heart Association, and Iowa Trudeau Society will hold an annual meeting May 7-8 at the Hotel Savery, Des Moines. Out-of-state speakers will include Drs. David G. Gillespie and Jerome I. Kleinerman, Cleveland. The sessions will open with a presentation of "Problems of Pulmonary Resection and Emphysema: Concepts Developed from Studies of Pulmonary Function." Thursday afternoon there will be a symposium on "Combined Approach to Tuberculosis Treatment; Contributions of Chemotherapy, Surgery and Clinical Laboratory," by Drs. Charles W. Gray, Ottumwa, Daniel F. Crowley Jr., Des Moines, and Wallace Rindskopf, Des Moines.

KANSAS

Meeting of General Practitioners.—The Kansas Academy of General Practice will hold its annual meeting May 4 at the Broadview Hotel, Wichita. Dr. C. Gordon Johnson, New Orleans, will speak on "Office Procedures in Obstetrics and Gynecology," and Dr. Robert L. Sanders, Memphis, Tenn., will present "The Gallbladder Problem" and "An Appreciation of the General Practitioner as Seen by the Surgeon." A round-table discussion will follow. An informal dinner dance will be held at 7 p. m., with Mr. Alex Dreier, Chicago, news commentator, as speaker.

University News.—Dr. Charles B. Huggins, professor of surgery, University of Chicago School of Medicine, will be guest speaker for Student Research Day at the Kansas University School of Medicine, Kansas City, May 8.——Dr. Elmer Belt, clinical professor of urology at the University of California School of Medicine at Los Angeles, will give the Clendening lectures, May 4, on the Lawrence campus of the University of

Kansas at 11 a. m. ("Leonardo da Vinci's Technical Innovations and Discoveries in Anatomy") and at the Kansas University Medical School in Kansas City, at 4 p. m. ("Leonardo da Vinci's Studies of the Genitourinary System"). Dr. Belt is said to have one of the finest private libraries of material relating to Leonardo da Vinci. He was a guest lecturer at the Sorbonne last summer for the Leonardo celebration.

State Medical Meeting in Wichita.—The Kansas Medical Society will hold its annual meeting May 5-7 at the Arcadia Theater under the presidency of Dr. Warren F. Bernstorf, Winfield. Guest speakers and their first presentations include:

Facts to Be Learned from Study of Maternal Deaths, Frank R. Lock, Winston-Salem, N. C.
Medical and Surgical Treatment of Goiter, Edward H. Rynearson, Rochester, Minn.
Prostate Cancer, Elmer Belt, Los Angeles.
Peptic Ulcer Problem, Robert L. Sanders, Memphis, Tenn.
Gynecologic Lower Abdominal Pain, C. Gordon Johnson, New Orleans.
Obstructive Lesions of the Gastrointestinal Tract, Edward B. D. Neuhauser, Boston.
Common Surgical Problems in Infants and Children, Orvar Swenson, Boston.
Painful Shoulders, Hugh Smith, Memphis, Tenn.
Surgery of Mitral Stenosis, Charles P. Bailey, Philadelphia.
Skin Manifestations of Lipid Diseases, Arthur C. Curtis, Ann Arbor, Mich.
Management of Rheumatoid Arthritis, William D. Robinson, Ann Arbor, Mich.
Acutely Inflamed Eye, Peter C. Kronfeld, Chicago.
Management of Acute Laryngotracheobronchitis, Harold L. Hickey, Denver.

The banquet will be held Wednesday at 7 p. m. in the Broadview Hotel Ballroom. The Woman's Auxiliary will meet in Wichita, May 4-7.

MASSACHUSETTS

Cutter Lecture on Malaria.—The Harvard University School of Public Health, Boston, announces that Sir Gordon Covell, director of the Malaria Laboratory, Horton Hospital, Epsom, England, will deliver the Cutter Lecture on Preventive Medicine May 6 at 5 p. m. in the Jimmy Fund Building, 35 Binney St., Boston. Dr. Covell, who is adviser on malaria to the Ministry of Health and was formerly director of the Malaria Institute of India, will discuss "Current Research Toward a Global Control of Malaria." All interested are cordially invited.

Personal.—Dr. Nathan Sidel, clinical professor of medicine, Tufts College Medical School, Boston, delivered the annual Wohl Foundation lecture at a recent staff meeting of the Mount Sinai Hospital, Miami Beach, on "Recent Advances in the Therapy of Rheumatic Diseases."——Dr. Walter Bauer, Jackson professor of clinical medicine at Harvard Medical School, and chief of medical services of the Massachusetts General Hospital, Boston, recently accepted this year's visiting professorship sponsored by the Galen Society of the University of Michigan Medical School, Ann Arbor.

MICHIGAN

Narcotic Violation.—Dr. Carl W. Wagar, Bangor, was convicted in the U. S. District Court at Grand Rapids of violation of the federal narcotic law. On Nov. 24, 1952, Dr. Wagar's sentence of three years was suspended, and he was placed on probation for three years. On Jan. 26, his probation was revoked, and he was sentenced to serve a term of one year and six months.

Grant for Cancer Study.—The Atomic Energy Commission, Washington, D. C., has provided a grant of $104,000 for the first year of a cancer study to be carried out in the roentgenology department of the University of Michigan Medical School, Ann Arbor, under the direction of Drs. Fred J. Hodges and Isadore Lampe. The purpose of the investigation is to determine whether by-products of nuclear fission, hitherto considered waste, can be used in the treatment of cancer.

Four Physicians Receive Scrolls.—At the annual Michigan Clinical Institute in Detroit, the state medical society presented scrolls to the following: (1) Dr. Earle A. Irvin, Detroit, president of the Industrial Medical Association and medical director of the Cadillac Motor Car Division of General Motors Corporation, (2) Dr. Frank L. Rector, Lansing, secretary, Michigan State Medical Society Cancer Control Committee, for "his many years of fruitful accomplishments in lay education in cancer," (3) Dr. Norman F. Miller, chairman, department of obstetrics and gynecology, University of Michigan Medical School, Ann Arbor, in recognition of "his unequaled record of follow-up information on all of the more than 3,150 cases of gynecological cancer seen by him during the past 22 years," and (4) Dr. Harry M. Nelson, Detroit, president, American Cancer Society, in recognition of "distinguished service rendered by him to medicine, medical education, and research."

MINNESOTA

Change of Date of State Medical Meeting.—The annual meeting of the Minnesota State Medical Association will be held in St. Paul May 18-20. This is a change from the date originally announced (May 25-27).

E. Starr Judd Lecture.—The 20th E. Starr Judd lectureship will be given May 7, 8:15 p. m. in the Amphitheater, Owre Hall, University of Minnesota, Minneapolis, by Dr. Charles B. Huggins, professor of surgery, University of Chicago, who will speak on "The Endocrinology of Mammary Cancer."

Course in Radiology.—The University of Minnesota, Minneapolis, will present a continuation course in radiology for general physicians May 21-23 under the direction of Dr. Leo G. Rigler, professor of radiology. Registrants will spend most of their time in the University Hospital department of radiology, reading films and carrying out procedures in association with members of the faculty of that department. Registration will be limited. Early application is suggested by Dr. Robert B. Howard, director of the department of continuation of medical education (3330 Powell Hall).

NEW MEXICO

State Medical Meeting in Albuquerque.—The New Mexico Medical Society will hold its annual session May 7-9 at the Hilton Hotel, Albuquerque, Thursday, 9 to 11 a. m., clinics will be held at the VA Hospital and case presentations at Regina School of Nursing, 715 Grand Ave., N.E. Guest speakers will preside at round-table luncheons at the Hilton. The opening ceremonies will be at 1:30 p. m., with Dr. Coy S. Stone, Hobbs, retiring president, presiding. The presidential address will be delivered by Dr. Albert S. Lathrop, Santa Fe. Out-of-state speakers include:

Ectopic Pregnancy, Frederick H. Falls, Chicago.
Role of the Kidney in Production of Backache, Michael K. O'Heeron, Houston, Texas.
Subject to be announced, Clifford D. Sweet, Oakland, Calif.
Diagnostic Methods and Approach to Epilepsy, G. Milton Shy, Denver.
Hypertensive Patients, Arthur C. Corcoran, Cleveland.
Ocular Manifestation of Diabetes, James H. Allen, New Orleans.
Gallbladder, M. M. Thompson Jr., Toledo.
Diagnosis and Treatment of Coronary Artery Disease, George R. Herrmann, Galveston, Texas.

On Friday, 12:30 to 2 p. m., guest speakers will preside at medical round-table luncheons. On Friday at 7:30 p. m. there will be a dinner dance at the Albuquerque Country Club.

NEW YORK

Hospital News.—The staff of High Point Hospital, Port Chester, will hear Dr. Irving Bieber, New York, discuss "Depression" at the New York Academy of Sciences, 2 E. 63rd St., New York, at 8:30 p. m., May 6. Dr. Mervyn Schacht, New York, will present case material. Members of the profession are cordially invited.

Course in Glaucoma.—A course in glaucoma, with emphasis on gonioscopy and study of the anterior angle, will be given at the Brooklyn Eye and Ear Hospital, May 4-6. One afternoon will be devoted to surgical indications for and technique of glaucoma surgery. On the faculty will be Drs. E. Clifford Place, Walter V. Moore, Mortimer A. Lasky, Daniel Kravitz, and Arthur Shainhouse. Application and the fee of $40 for registration of ophthalmologists may be addressed to Dr. Daniel Kravitz, Brooklyn Eye and Ear Hospital, 29 Greene Ave., Brooklyn 38.

State Medical Meeting in Buffalo.—The annual convention of the Medical Society of the State of New York will be held at the Hotel Statler, Buffalo, May 4-8, under the presidency of Dr. Edward T. Wentworth, Rochester. The A. Walter Suiter Lecture on "Therapeutic Implications of Gallstones" will be delivered by Dr. Albert F. R. Andresen, Brooklyn, Thursday afternoon. On Friday a symposium on wound treatment will be presented at 9 a. m. Motion pictures will be shown Monday through Friday, and television programs in color will be presented on Monday, Tuesday, and Wednesday. On Thursday the Blood Banks Association of New York will present a program ending with a round-table discussion on "Present Blood Banking Problems," with Dr. Jacob Geiger, New York, as moderator and Drs. John J. Clemmer, Albany, Israel Davidsohn, Chicago, John Scudder and Lester J. Unger, New York, Alexander S. Wiener, Brooklyn, and Ernest Witebsky, Buffalo, as collaborators. Thursday afternoon a laboratory demonstration of blood grouping and blood banking procedures will be given at Buffalo General Hospital Blood Bank, 100 High St. Presentations by out-of-state speakers during the convention include:

X-Ray Therapy in Neoplastic Diseases, Eugene P. Pendergrass, Philadelphia.

Criteria for and Results of Mitral Valve Surgery, Robert P. Glover, Philadelphia.

Physiology and Modern Methods of Resuscitation, Max S. Sadove, Chicago.

Obesity: Causes and Treatment, Willard O. Thompson, Chicago.

Recent Advances in Esophageal Diseases, Howard A. Andersen, Rochester, Minn.

Significance of the Bronchopulmonary Segment, Chevalier L. Jackson, Philadelphia.

Pitfalls in Diagnosis and Treatment of Pulmonary Diseases as Experienced by the Thoracic Surgeon, William A. Hudson, Detroit.

Newer Concepts of Treatment of Severe Burns, William L. Estes Jr., Bethlehem, Pa.

Rheumatoid Arthritis in Industrial Medicine, Arthur L. Watkins, Boston.

Uterine Bleeding Due to Ovarian Dysfunction, Inglis F. Frost, Morristown, N. J.

Use of Cortisone and ACTH in Gynecology and Obstetrics, Georgeanna E. S. Jones, Baltimore.

Treatment of the Chronic Discharging Middle Ear (illustrated by a motion picture in color), Joseph A. Sullivan, Toronto, Canada.

Thromboendarterectomy: Indications and Results in Treatment of Obstructions of Large Arteries, Rutherford S. Gilfillian, San Francisco.

Public Relations Factors of Physician-Hospital Relationship, Elmer Hess, Erie, Pa.

The Woman's Auxiliary will meet at the Hotel Statler, May 3-7, and the Women's Medical Society of New York State will hold its annual meeting May 4. The annual banquet of the state society will be held Wednesday at 7 p. m.

New York City

Freud Anniversary Lecture.—The New York Psychoanalytic Institute and Society will present the 1953 Freud Anniversary Lecture, "Psychoanalysis and the Cycles of Life," by Dr. Phyllis Greenacre at the New York Academy of Medicine (2 E. 103rd St.) May 6, 8:30 p. m.

Goodwill Award to Dr. Milliken.—Dr. Seth Minot Milliken was recently selected by Goodwill Industries of New York as the recipient of its annual award, bestowed on a person who has demonstrated courage by not permitting his personal handicap to interfere with his civic contribution and service. Dr. Milliken, who is handicapped as the result of poliomyelitis, has spent an active life assisting others who are physically handicapped. The award, a handsomely illuminated parchment, was tendered Dr. Milliken in a ceremony following a tribute by Dr. Henry W. Cave, consulting surgeon at Roosevelt Hospital and former president of the American College of Surgeons. Dr. Milliken, who was, for a number of years, consulting surgeon at St. Christopher's Home for Children at Dobbs Ferry and surgical director of Reconstruction Hospital, is chairman of the New York City Welfare Medical Board and a trustee of Roosevelt Hospital and also of the New York Academy of Medicine, which he served as treasurer for 18 years. The Blue Hill Troupe, an amateur musical organization that he and his wife founded in 1922, gives annual productions for the benefit of various medical and charitable organizations.

OHIO

Society News.—The Cincinnati Otolaryngologic Society has elected Dr. Gerson Lowenthal president, and Dr. Edward T. Juler secretary-treasurer. Meetings are held at 6:30 p. m. on the third Monday of each month except in July, August, September, and December.

Narcotic Violation.—Dr. Jacob Forrest Stultz, Richmond Dale, pleaded guilty in the U. S. District Court at Columbus to violation of the federal narcotic law. On Feb. 25, he was sentenced to a term of two years. His sentence was suspended, and he was placed on probation.

Joseph Freedman Lectures.—On May 2-3 Dr. Philip J. Hodes, professor of radiology at the University of Pennsylvania School of Medicine and the Medico-Chirurgical College, Graduate School of Medicine of the University, Philadelphia, will deliver the annual Joseph Freedman Lectures in Diagnostic Roentgenology at the University of Cincinnati College of Medicine. Roentgenologists desiring to attend are requested to write Dr. Benjamin Felson, Department of Roentgenology, Cincinnati General Hospital, Cincinnati, for details.

RHODE ISLAND

State Medical Meeting in Providence.—The annual meeting of the Rhode Island Medical Society will be held at the society's library in Providence May 6-7 under the presidency of Dr. Albert H. Jackvony, Providence. Speakers include:

Otto C. Brantigan, New York, Diagnosis of Bronchiectasis.

Louis Weinstein, Boston, What the Practitioner Should Know About Poliomyelitis.

Emil Novak, Baltimore, Relation of the Endocrines to the Female Genital Tract.

John Madden, New York, Newer Concepts in Treatment of Cirrhosis of Liver.

John H. Bland, Burlington, Vt., Newer Aspects of Sodium Metabolism; Correlation of Clinical with the Chemical Picture.

David M. Bosworth, New York, Diagnosis and Treatment of Intrinsic Lesions Causing Shoulder Pain.

Seymour J. Gray, Boston, Effect of ACTH and Cortisone on the Gastrointestinal Tract.

At the society's annual dinner the Charles V. Chapin Memorial Medal award of the City of Providence will be bestowed on Dr. George M. Wheatley, New York, who will deliver the 12th oration on "The Practicing Physician and Accident Prevention." Also speaking at the dinner will be Mr. Hanson Baldwin, military editor of the *New York Times*.

SOUTH CAROLINA

Personal.—The mayor of Mount Pleasant recently proclaimed "Frampton Day" in honor of Dr. James Frampton, aged 80, who has practiced medicine there continuously for 56 years. The proclamation stressed the fact that Dr. Frampton had "served the area without regard to hardships and inconveniences."

State Medical Meeting at Columbia.—The South Carolina Medical Association will hold its annual meeting at Columbia May 6-7 under the presidency of Dr. Lawrence P. Thackston, Orangeburg. The meeting will open at 2:30 p. m. Wednesday with a symposium for the general practitioner in which Dr. James J. Ravenel, Charleston, will serve as moderator, and Drs. Harold P. McDonald, Atlanta, Rubin H. Flocks, Iowa City, Robert Lich Jr., Louisville, and Meredith F. Campbell, New York, as collaborators. A panel discussion will follow. Presentations Thursday morning will include a discussion of "PR Profits" by Leo Brown, Chicago, A. M. A. Director of Public Relations; "Treatment of Atomic Bomb Injuries" by General James P. Cooney, Washington, D. C.; and "Cardiac Vascular Surgery" by Dr. Robert P. Glover, Temple University School of Medicine, Philadelphia. The afternoon session will be devoted to the Columbia Clinical Symposium, which will include presentations with case demonstrations on true hermaphroditism, cretinism, multiple skeletal injuries, and arteriosclerosis.

VIRGINIA

Joint Annual Meeting.—The annual meeting of the Virginia Academy of General Practice at the Hotel Jefferson, Richmond, May 6-8, will be held simultaneously with that of the Virginia Diabetes Association and the Virginia Chapter of the American College of Chest Physicians, which will present their programs on Wednesday morning and afternoon, respectively. The program of the diabetes association will include a panel discussion on therapy, in which Dr. Henry B. Mulholland, Charlottesville, vice-president of the American Diabetes Association, will participate with Drs. Robert C. Crawford, Roanoke, William R. Jordan, Richmond, and George S. Grier III, Newport News. The program of the chest physicians will include presentations on "The Total Approach to the Diagnosis of Tuberculosis" by Dr. Carl W. La Fratta, Richmond; "Treatment of Chronic Bronchitis" by Dr. W. LeRoy Dunn, Washington, D. C.; and "Primary Cancer of the Lung" by Dr. Frank P. Coleman, Richmond. The scientific assembly of the general practitioners will open Thursday morning with a talk on "A. M. A. Representation in Washington" by Dr. Cyrus H. Maxwell, Washington, D. C. Other presentations include:

Infant Feeding, McLemore Birdsong, Charlottesville.
Genital Urinary Infections, Thomas B. Washington, Richmond.
Dental Infections, Holmes T. Knighton, D.D.S., Richmond.
Diagnosis and Treatment of Epilepsy, Randolph Leigh Jr., Charlottesville.

The afternoon session will be a clinicopathological conference with case presentation by Dr. Charles M. Caravati, Richmond, and pathological discussion by Dr. Gordon R. Hennigar, Richmond. Dr. Kenneth R. Crispell, Charlottesville, will speak on "Diseases of the Pituitary Glands." A cocktail party (courtesy of Van Pelt & Brown, Inc.) will precede the banquet on Thursday, which will be addressed by Dr. John S. Detar, Milan, Mich. Presentations by out-of-state speakers for the Friday session include:

Peripheral Vascular Diseases—Nondiabetic, James P. Hendrix, Durham, N. C.
Relation of the Physician in Industry to Those in Private Practice, R. Lomax Wells, Washington, D. C.
Treatment of Hypertension, Upshur Higginbotham, Bluefield, W. Va.

WEST VIRGINIA

Tri-County Medical Meeting.—The annual Tri-County Medical Meeting sponsored by the medical societies of Monongalia, Marion, and Harrison counties at the Stonewall Jackson Hotel, Clarksburg, May 7, will feature a symposium on gastroenterology at 2 p. m. Out-of-state speakers include Drs. Paul C. Kiernan, John C. Sullivan, and Oscar B. Hunter Jr., all of Washington, D. C., and Commander William S. Cole, (MC), USN, Bethesda, Md. After a buffet dinner at 6 p. m. the meeting will reconvene for a panel discussion in which all the speakers on the afternoon program will participate.

Geriatrics Meeting.—The annual State Health Conference at the Daniel Boone Hotel, Charleston, May 7-8, will consider "Problems of the Aging in the Fields of Health and Welfare." On Thursday Dr. Malford W. Thewlis, Wakefield, R. I., secretary, American Geriatrics Association, will discuss the problems of health and emotional adjustments. John Convery, Employee Relations Division, National Association of Manufacturers, New York, will deal with those of occupational relations and socioeconomics. On Friday there will be a panel discussion on "How to Meet the Problems of the Aging," with Fred J. Holter, Ph.D., Morgantown, graduate adviser, School of Physical Education and Athletics, West Virginia University, as moderator. The annual Health Education Workshop will be held at the Daniel Boone Hotel the day preceding the health conference. The theme, "Group Communication in Health Education—Techniques, Tools and Evaluation," will be developed in presentations on "Effective Public Speaking," "Working with Newspapers," "Using Movies Effectively," and "Working with Radio Stations." Mr. Thomas A. Deveny, executive director of the West Virginia Tuberculosis and Health Association, will be in charge of the workshop.

GENERAL

Meeting of Genitourinary Surgeons.—The American Association of Genito-Urinary Surgeons will hold its annual meeting May 6-8 at the Homestead, Hot Springs, Va., under the presidency of Dr. Albert J. Scholl, Los Angeles. The following symposiums will be given on successive days: "Advanced Cancer of the Prostate," "Acute Renal Insufficiency," and "Operative Procedures of the Prostate." The banquet will be on Thursday.

Regional Meeting of Surgeons.—The Great Lakes Division of the U. S. Chapter of the International College of Surgeons will hold a regional meeting May 5-6 at the Congress Hotel, Chicago. Dr. Arnold S. Jackson, Madison, Wis., will serve as moderator for a thyroid symposium on Tuesday, 2 p. m., and will preside at an orthopedic symposium, which will open the Wednesday session at 9 a. m. Wednesday, 2 p. m., there will be a peptic ulcer symposium with Dr. Raymond W. McNealy, Chicago, as moderator.

Association of American Physicians.—The annual meeting of the Association of American Physicians will be held at Chalfonte-Haddon Hall, Atlantic City, N. J., May 5-6, under the presidency of Dr. William S. McCann, Rochester, N. Y. Thirty-two papers will be presented. The association dinner Tuesday will be addressed by Dr. Rene J. Dubos, New York. During the Wednesday morning session the George M. Kober medal will be presented to Dr. F. Peyton Rous, New York.

Meeting on Electroshock.—The annual meeting of the Electroshock Research Association will be held May 3 at the Mayfair Hotel, 1256 W. 7th St., Los Angeles, under the presidency of Dr. Philip B. Reed, Indianapolis. A symposium on focal treatment will be held in the morning, and a symposium on succinylcholine chloride in the afternoon. On May 7 the round-table dinner meeting of the American Psychiatric Association will be followed by a presentation on "Advances in Electroshock Techniques" under the auspices of the Electroshock Research Association.

Ruth Berger Reader Fellowship.—The Hematology Research Foundation invites applications for the Ruth Berger Reader fellowship for research in blood diseases in the academic year 1953-1954 ($1,500 per year with option to renew). The offer is made to workers of any race or creed in the United States. The foundation's Medical Advisory Council will choose the applicant on the basis of merit and will also choose the institution in Chicago in which the work is to be done. Applications (nine copies) must be submitted no later than June 1 to Hematology Research Foundation, 64 W. Randolph St., Chicago 1. Awards will be announced by the council the latter part of June.

Meeting of Ophtho-Otolaryngologists.—A joint meeting of the West Virginia Academy of Ophthalmology and Otolaryngology with the Virginia Society of Ophthalmology and Otolaryngology will be held at the Homestead, Hot Springs, Va., May 4-5. Presentations by guest speakers include:

Management of Penetrating and Blunt Injuries of the Eye, Alston Callahan, Birmingham, Ala.
Tumors of the Neck, Louis H. Clerf, Philadelphia.
Retinal Detachment, James S. Shipman, Philadelphia.
Tumors and Cyst of Teratological Origin of Interest to the Otolaryngologist, Albert C. Furstenberg, Ann Arbor, Mich.

A special meeting of the West Virginia Academy is scheduled for 8:30 p. m., May 3.

Industrial Medicine.—Two postgraduate courses of one week's duration each have been set up by the Institute of Industrial Medicine of the New York University Post-Graduate Medical School (325 E. 38th St., New York) as follows: (1) medical aspects of workmen's compensation, May 11-15; (2) industrial medicine and occupational health, May 18-23. All sessions (9 a. m. to 5 p. m. daily) will be held at the New York Academy of Medicine, 103rd Street and Fifth Avenue. The programs are planned to interest the general practitioner, part-time physician in industry, and medical directors of industrial concerns. Outline of the courses and application blanks may be obtained by writing to the institute.

Electroencephalography Meeting in Los Angeles.—The Western Society of Electroencephalography will hold its annual meeting at the Statler Hotel, Los Angeles, May 8-9, under the presidency of Dr. Nicholas A. Bercel, Los Angeles. Dr. Bercel will serve as moderator for a symposium on altered states of consciousness and electroencephalography at 9 a. m. Saturday. Participants will be Dr. John D. French, Horace W. Magoun, Ph.D., Donald B. Lindsley, Ph.D., and Dr. Karl O. von Hagen, Los Angeles; Dr. Kenneth A. Blinn, Long Beach, Calif.; Drs. Robert B. Aird and Charles Yeager, San Francisco; and Dr. Louis B. Thomas, Seattle. The annual banquet will be held Saturday, 8 p. m. Technicians and workers in allied fields are invited to attend the meeting.

National Hearing Week.—The 25th annual observance of National Hearing Week will be May 3-9. The campaign, under the sponsorship of the American Hearing Society (817-14th St., N.W., Washington, D. C.), of which Dr. Thomas L. Tolan, Milwaukee, is president, will inform the public on prevention of deafness, conservation of hearing, and rehabilitation of the hard of hearing, and point out the need for extended services for the estimated 3 million children and 12 million adults whose hearing is below par. The American Hearing Society has 115 chapters in 34 states, the District of Columbia, and Canada, most of which will feature special programs during National Hearing Week, including demonstrations of hearing tests, auditory training, and lip reading.

Director-General Nominated for WHO.—Dr. Marcolino Gomes Candau of Brazil, assistant director of the Pan American Sanitary Bureau, Washington, D. C., has been nominated by the WHO Executive Board as the new director-general of the organization to succeed Dr. Brock Chisholm, who will retire July 21 (*J. A. M. A.* **151**:53 [Jan. 3] 1953). Dr. Candau's name will go to the Sixth World Health Assembly, which will open in Geneva May 5. Dr. Candau previously served two years in the Geneva headquarters of the organization, first as director of the Division of Public Health Services and later as assistant director-general, Department of Advisory Services. Before coming to WHO, he was superintendent of the "Servico Especial de Saude Publica" (S.E.S.P.), a cooperative public health program of the Brazilian government and the Institute of Inter-American Affairs.

Meeting of Goiter Association.—The annual meeting of the American Goiter Association will be held at the Drake Hotel, Chicago, May 7-9, under the presidency of Dr. Claude J. Hunt, Kansas City, Mo. On Thursday afternoon there will be a panel discussion on "Radioiodine in the Diagnosis and Treatment of Thyroid Disease," with Dr. Earl R. Miller, San Francisco, as moderator, and Drs. Dwight E. Clark, Chicago, and Sidney C. Werner, New York, as collaborators. The presidential address, "A Discussion of Some Controversial Thyroid Problems," will be delivered Friday at 9 a. m. The Van Meter prize award paper will be read at luncheon Friday, 12:30 to 2 p. m. For the panel discussion on "Adenomatous Goiter," which will open the Friday afternoon session, Dr. Frank H. Lahey, Boston, will be moderator, and participants will be Drs. B. Marden Black, Rochester, Minn., John C. McClintock, Albany, N. Y., and Robertson Ward, San Francisco. The annual banquet Friday at 7:30 p. m. in the Gold Coast Room will be preceded by a reception and cocktails. Dress optional.

Boston Alumni Meeting.—The Alumni Association of the Boston University School of Medicine will hold its annual meeting and banquet May 2. The scientific session, 2 to 4 p. m., will consist of a symposium on poliomyelitis, in the school of medicine auditorium, 80 E. Concord St.:

Virus of Poliomyelitis and Resistance to It, John F. Enders, Ph.D., Boston.
Respiratory Problems in Poliomyelitis, Francis C. Lowell, Boston.
Orthopedic Problems in Poliomyelitis, Kenneth Christophe, Brookline.
Influence of Age, Antigen Injections, Tonsillectomy and Pregnancy on the Clinical Course of Poliomyelitis, Louis Weinstein, Boston.

The banquet, in John Hancock Hall, 200 Berkeley St., Boston, will be preceded by a social hour and will be addressed by Mr. Allen R. Foley, who will speak on "Vermont Humor."

Clinical Research Meeting.—The national meeting of the American Federation for Clinical Research will be held at the Steel Pier Theater, Atlantic City, N. J., May 3, under the presidency of Dr. James V. Warren, Durham, N. C. The program includes the following presentations in which invited speakers will participate:

The "Host Factor" in Human Illness: Occurrence of Major Differences in Susceptibility to Illness Among a Group of Adult Women.
Effects of Strenuous Exercise on Patients Convalescent from Acute Infectious Hepatitis.
Responsiveness to the Pancreatic Hyperglycemia-Glycogenolytic Factor (HGF) as a Test of Liver Function.
Evaluation of Parathyroid Function by a Calcium Infusion Technique.
Dynamics of Erythropoiesis and Cell Survival Studied with N^{15}-Glycine During Therapeutic Remission in Megaloblastic Anemias.
Comparison of Insulin Treatment With and Without Added Carbohydrate in Human Diabetic Ketosis.
Study of Thyroid Function by Means of a Single Injection of Thyrotropin.

Hospital Assembly.—The Hospital Assembly, sponsored by state hospital associations of Illinois, Indiana, Michigan, and Wisconsin, will be held at the Palmer House, Chicago, May 4-6, under the chairmanship of Dr. Malcolm T. MacEachern, Chicago, director of professional relations, American Hospital Association. At the joint conference of trustees and medical staff members Monday, 3:45 to 5:45 p. m., the medical staff officer's viewpoint will be presented by Dr. Carl O. Rinder and discussion will be led by Dr. Josiah J. Moore, both of Chicago. The Conference on Sanatorium Care, Monday, 1:30 to 3:30 p. m., will present a panel discussion on "The Ambulatory Treatment of Tuberculosis and the Discharge of Patients From the Sanatorium While on Chemotherapy." The Conference of Medical Librarians, Monday, 3:45 to 4:45 p. m., will have as its theme "Current Research in the Field of Medicine," which will be developed in the following presentations:

Cardiovascular Research, Simon Rodbard, Chicago.
Research in Surgery, William Gillesby, Hines, Ill.
Aviation Medicine, John P. Marbarger, Ph.D., Chicago.

A presentation on standard nomenclature will be made by Adaline C. Hayden, R.R.L., Chicago, associate editor of "Standard Nomenclature of Diseases and Operations," and Mary J. Waterstraat, R.R.L., Chicago, during the consultation clinic of the Conference of Medical Record Librarians, Monday, 1:30 to 3:30 p. m. The Monday evening session will be a forum on "Obtaining Efficiency in Each Department." Tuesday afternoon the Conference on Inhalation Therapists will hear a talk on "Oxygen Therapy Department in a Modern Hospital" by Dr. Edwin R. Levine, Chicago, and the Conference of Medical Record Librarians a presentation on "The Joint Accreditation Program and Medical Records" by Dr. Edwin L. Crosby, Chicago. The Conference on Public Relations (Tuesday, 3:45 to 4:45 p. m.) will discuss improving public relations with patients. Dr. F. Lee Stone, Chicago, will speak for the physicians, and Dr. Opal E. Hepler, Chicago, for the ancillary diagnostic and therapeutic services. The Tri-State Hospital Assembly banquet will be held in the Grand Ballroom Tuesday, 7 p. m. Wednesday morning Dr. Arthur C. Bachmeyer, Chicago, will serve as moderator for a panel discussion on "Financial Aspects of Hospital Administration," and Dr. Charles D. Krause, Chicago, will speak on the value of the medical audit to the physician. Dr. Charles J. Thill, Chicago, will participate in the Conference on Institutional Care of the Chronically Ill, Wednesday afternoon, with a paper on "What Is the Place of Rehabilitation in Care of the Chronically Ill?" The Conference of Inhalation Therapists, Wednesday afternoon, will be addressed by Dr. Albert H. Andrews Jr., Chicago, on "Efficacy of Oxygen Therapy in Tents and Incubators as Indicated by Continuous Oxygen Analysis."

Psychiatrists Meet in Los Angeles.—The American Psychiatric Association will hold its annual meeting at the Statler Hotel, Los Angeles, May 4-8, under the presidency of Dr. D. Ewen Cameron, Montreal, Canada. A symposium on "Psychiatric Disturbances in the Very Young Child" will be presented by the section on child psychiatry Monday, 2 p. m. Monday, 5 to 7 p. m., a pay-as-you-go cocktail party in the Golden State Room will be followed by a special program sponsored by the

Committee on International Relations, Dr. Iago Galdston, New York, chairman, during which "Perspectives in International Psychiatry" will be presented. The following round-table dinners ($5 per person) will be held Tuesday at 7 p. m.:

The Worker and His Accident.
Hypnotic Techniques in Psychotherapy.
Outpatient Treatment of the Psychotic Patient.
Meaning and Use of Diagnosis in Psychotherapy.
The Child of Divorced Parents.

At 8 p. m. there will be round-tables on "The Role of the Psychiatrist in a Mental Health Association" and "Relations of Psychology and Psychiatry." The annual dinner (price including tips, $7.50), Wednesday, 7 p. m., Pacific Ballroom, will be the occasion for the presentation of the Hofheimer award, Mental Hospital Institute awards, and various certificates of commendation. Thursday evening the following round-table dinners will be held at 7 p. m.:

Recruitment and Training of Residents in State Hospitals.
Problems of Retirement.
Medicolegal Aspects of Sexual Pathology.
Interpreting the Functions of Nursing Services in Psychiatric Hospitals to the Public.
International Psychiatry.
The Psychiatric Outpatient Clinic.

At 8 p. m. there will be round-table meetings on "Advances in Electroshock Techniques" and "Group Psychotherapy and Psychodrama." A movie symposium has been scheduled for Thursday afternoon. Nonmembers are welcome to attend the scientific session. A $5 fee covers admission to scientific meetings throughout the week.

FOREIGN

Sports Medicine.—A series of meetings dedicated to sports medicine will be held in Rome, Italy, May 8-10. The board of directors of the International Federation of Sports Medicine will meet on Friday, the National Assembly of the Italian Federation of Sports Medicine on Saturday, and on Sunday there will be a scientific convention to report on sports physiology and traumatology. Information may be obtained from the F.M.S.I. (Italian Federation of Sports Medicine), Foro Italico, Rome, Italy.

Course in Digestive Pathology.—This course, given under the auspices of the Faculty of Medicine of Paris and the French National Society of Gastroenterology May 27 to July 4, will be offered as follows: (1) liver and pancreas (May 27 to June 6); (2) esophagus, stomach, and duodenum (June 9-22); (3) intestine, rectum, and anus (June 23 to July 4). Enrollment: 4,000 francs (approximately $11.60) per section; 12,000 francs for the whole course; interns in university city hospitals will receive a two-thirds reduction. A detailed program will be sent on request to the secretaries general: Dr. Francois Moutier, 78, rue de Monceau, Paris 80, or Dr. Andre Busson, 63 bis, rue de Varenne, Paris 70.

Hospital Congress in London.—The eighth International Hospital Congress will be held in London May 25-30 at Church House, Great Smith St., Westminster, London, S. W. 1. Plenary sessions and sectional groups will study the central theme of the congress, "Preventive Medicine as a Major Function of the Hospital, and Its Implications." Dr. Edwin L. Crosby, Chicago, president, American Hospital Association, and director, Joint Commission on Accreditation of Hospitals, will address the assembly on Monday at 2:30 p. m. At 8:30 p. m. the president and council of management will hold a reception at the British Medical Association House, Tavistock Square, London, W.C.1. On Wednesday at 10 a. m. there will be an open forum for group discussion on questions relating to aspects of hospital work and practice other than those included in the general theme. The congress dinner will be held Friday at 8 p. m. at the Connaught Rooms, Great Queen St., W.C.2. Correspondence should be addressed to the Secretariat of the International Hospital Federation, 10 Old Jewry, London, E.C.2.

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 23-25. Sec., Dr. D. G. Gill, 537 Dexter Ave., Montgomery.

ARKANSAS:* *Regular. Examination.* Little Rock, June 18-19. Sec., Dr. Joe Verser, Harrisburg. *Homeopathic. Examination.* Little Rock, April 6. Sec., Dr. Carl S. Bungart, 105 North 14th St., Ft. Smith. *Eclectic.* Little Rock, June 4-5. Sec., Dr. Frank C. Smith, 2301 Broadway, Little Rock.

CALIFORNIA: San Francisco, June 22-25. Asst. Sec., Mr. Wallace D. Thompson, 1020 N Street, Sacramento 14.

DELAWARE: Dover, July 14-16. Sec., Dr. Joseph S. McDaniel, 229 South State St., Dover.

DISTRICT OF COLUMBIA:* *Examination.* Washington, May 11-12. Commissioner of Licensure, Dr. Daniel L. Seckinger, 4130 East Municipal Bldg., Washington.

FLORIDA:* Jacksonville, June 28-30. Sec., Dr. Homer Pearson, 701 Dupont Bldg., Miami.

GEORGIA: *Examination.* Atlanta and Augusta, June 9-10. *Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

GUAM: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Ex. Sec., Dr. Austin W. Matthis, Agana.

HAWAII: *Examination.* Honolulu, July 13-15. Sec., Dr. I. L. Tilden, 1020 Kapiolani St., Honolulu.

IDAHO: Boise, July 13-15. Exec. Sec., Mr. Armand L. Bird, 364 Sonna Bldg., Boise.

INDIANA: *Examination.* Indianapolis, June 23-25. Ex. Sec., Miss Ruth V. Kirk, 538 K of P Bldg., Indianapolis.

IOWA:* *Examination.* Iowa City, June 15-17. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

KANSAS: Kansas City, June 10-11. Sec., Dr. O. W. Davidson, 864 New Brotherhood Bldg., Kansas City.

KENTUCKY: *Examination.* Louisville, June 8-10. Sec., Dr. Bruce Underwood, 620 South Third St., Louisville 2.

LOUISIANA: *Examination.* New Orleans, June 4-6. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

MAINE: *Reciprocity and Examination.* Augusta, July 14-15. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Examination.* Baltimore, June 16-19. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore 1.

MASSACHUSETTS: *Examination.* Boston, July 14-17. Sec., Dr. Robert C. Cochrane, Room 37, State House, Boston 33.

MICHIGAN: *Examination.* June 10-12, Ann Arbor and Detroit. Sec., Dr. J. Earl McIntyre, 201-4 Hollister Bldg., Lansing.

MISSISSIPPI: Jackson, June 22-24. Sec., Dr. Felix J. Underwood, Old Capitol Bldg., Jackson 113.

NEBRASKA:* *Examination.* Omaha, June 15-17. Director, Mr. Husted K. Watson, Room 1009 State Capitol Bldg., Lincoln 9.

NEW JERSEY: Trenton, June 16-19. Sec., Dr. Earl S. Hallinger, 28 West State St., Trenton.

NORTH CAROLINA: *Reciprocity.* Pinehurst, May 11. *Examination.* Raleigh, June 22-25. *Reciprocity.* Raleigh, June 23. Sec., Dr. Joseph J. Combs, 716 Professional Bldg., Raleigh.

NORTH DAKOTA: Grand Forks, July 8-11. Sec., Dr. C. J. Glaspel, Grafton.

OHIO: *Examination.* Columbus, June 15-17. *Reciprocity.* Columbus, April 7. Sec., Dr. H. M. Platter, 21 W. Broad, Columbus 15.

OKLAHOMA:* *Examination.* Oklahoma City, June 10-11. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON:* *Examination.* Portland, July 9-10. *Reciprocity.* Portland, April 10-11. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

PENNSYLVANIA: *Examination.* Philadelphia and Pittsburgh, July. Act. Sec., Mrs. Margaret G. Steiner, Box 911, Harrisburg.

SOUTH DAKOTA:* Rapid City, June 17-18. Exec. Sec., Mr. John C. Foster, 300 1st National Bank Bldg., Sioux Falls.

TEXAS:* Fort Worth, June 22-24. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Ft. Worth 2.

UTAH: *Examination.* Salt Lake City, July. Asst. Dir., Mr. Frank E. Lees, 324 State Capitol Bldg., Salt Lake City.

VIRGIN ISLANDS: *Examination.* St. Thomas, June 10-11. Sec., Dr. Earle M. Rice, Box 8, St. Thomas.

VIRGINIA: *Examination and Reciprocity.* Richmond, June 17-20. Address: Secretary, Board of Medical Examiners, 631 First St. S.W., Roanoke.

WISCONSIN:* *Examination.* Milwaukee, July 14-16. Sec., Dr. A. G. Koehler, 46 Washington Blvd., Oshkosh.

WYOMING: *Oral. Reciprocity.* Cheyenne, June 8. Sec., Dr. Franklin D. Yoder, State Office Bldg., Cheyenne.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: On application. Juneau or other towns in Territory as decided by Board. *Reciprocity.* On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

ARKANSAS: *Examination.* Little Rock, May 5-6. Sec., Mr. Louis E. Gebauer, 1002 Donaghey Bldg., Little Rock.

FLORIDA: *Examination.* Gainesville, June 6. Sec., Mr. M. W. Emmel, Box 340, University of Florida, Gainesville.

NEBRASKA: Omaha, May 5-6. Director, Bureau of Examining Boards, Mr. Husted K. Watson, Room 1009, State Capitol Bldg., Lincoln 9.

OREGON: *Examination.* Portland, June 6. Dr. Charles D. Byrne, University of Oregon, Eugene.

SOUTH DAKOTA: *Examination.* Vermillion, June 5-6. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

WASHINGTON: *Examination.* Seattle, July 8-9. Sec., Department of Licenses, Mr. Edward C. Dohm, Olympia.

WISCONSIN: *Examination.* Milwaukee, June 13. Final date for filing application is June 6. Sec., Dr. W. H. Barber, 621 Ransom St., Ripon.

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* Basic Science Certificate required.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1953 Annual Session, New York, June 1-5.

1953 Clinical Session, St. Louis, Dec. 1-4.

1954 Annual Session, San Francisco, June 21-25.

1954 Clinical Session, Miami, Florida, Nov. 30-Dec. 3.

AERO MEDICAL ASSOCIATION, Biltmore Hotel, Los Angeles, May 11-13. Dr. Thomas H. Sutherland, P. O. Box 26, Marion, Ohio, Secretary.

AMERICAN ACADEMY OF TUBERCULOSIS PHYSICIANS, Hotel Roosevelt, New York, May 30. Dr. Oscar S. Levin, P. O. Box 7011, Denver 6, Secretary.

AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS, The Homestead, Hot Springs, Va., May 6-8. Dr. Norris J. Heckel, 122 S. Michigan Blvd., Chicago 3, Secretary.

AMERICAN ASSOCIATION ON MENTAL DEFICIENCY, Hotel Statler, Los Angeles, May 12-16. Dr. Neil A. Dayton, P. O. Box 96, Willimantic, Conn., Secretary.

AMERICAN BLOOD IRRADIATION SOCIETY, Waldorf-Astoria, New York, May 30-31. Dr. H. T. Lewis, 1241 Peermont Ave., Pittsburgh, Secretary.

AMERICAN COLLEGE OF CARDIOLOGY, Hotel Statler, Washington, D. C., June 7-9. Dr. Philip Reichert, 480 Park Ave., New York 22, Secretary.

AMERICAN COLLEGE OF CHEST PHYSICIANS, Hotel New Yorker, New York, May 28-31. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Executive Director.

AMERICAN DERMATOLOGICAL ASSOCIATION, Lake Placid Club, Lake Placid, N. Y., June 9-13. Dr. Louis A. Brunsting, 102 Second Ave. S.W., Rochester, Minn., Secretary.

AMERICAN DIABETES ASSOCIATION, Hotel Commodore, New York, May 30-31. Dr. John A. Reed, 11 West 42d St., New York 36, Secretary.

AMERICAN FEDERATION FOR CLINICAL RESEARCH, Haddon Hall, Atlantic City, N. J., May 3. Dr. Lawrence E. Hinkle Jr., 525 East 68th St., New York 21, Secretary.

AMERICAN GERIATRICS SOCIETY, Hotel Commodore, New York, May 28-30, Dr. Malford W. Thewlis, 25 Mechanic St., Wakefield, R. I., Secretary.

AMERICAN GOITER ASSOCIATION, Drake Hotel, Chicago, May 7-9. Dr. George C. Shivers, 100 E. St. Vrain St., Colorado Springs, Colo., Secretary.

AMERICAN GYNECOLOGICAL SOCIETY, Lake Placid Club, Lake Placid, N. Y., June 15-17. Dr. John I. Brewer, 104 South Michigan Ave., Chicago, Secretary.

AMERICAN MEDICAL WOMEN'S ASSOCIATION, Barbizon-Plaza Hotel, New York, May 29-31. Dr. Elizabeth R. Fischer, 10848 South Fairfield Ave., Chicago 43, Secretary.

AMERICAN NEUROLOGICAL ASSOCIATION, Hotel Claridge, Atlantic City, N. J., June 15-17. Dr. H. Houston Merritt, 710 West 168th St., New York 32, Secretary.

AMERICAN OPHTHALMOLOGICAL SOCIETY, The Homestead, Hot Springs, Va., May 28-30. Dr. Maynard C. Wheeler, 30 West 59th St., New York 19, Secretary.

AMERICAN ORTHOPEDIC ASSOCIATION, The Homestead, Hot Springs, Va., June 20-July 1. Dr. George O. Eaton, 4 East Madison St., Baltimore 2, Secretary.

AMERICAN PEDIATRIC SOCIETY, Hotel Traymore, Atlantic City, N. J., May 6-8. Dr. Aims C. McGuinness, 237 Medical Laboratories, University of Pennsylvania, Philadelphia 4, Secretary.

AMERICAN PROCTOLOGIC SOCIETY, Hotel Statler, Boston, June 10-13. Dr. Stuart T. Ross, 131 Fulton Ave., Hempstead, N. Y., Secretary.

AMERICAN PSYCHIATRIC ASSOCIATION, Hotel Statler, Los Angeles, May 4-9. Dr. R. Finley Gayle Jr., 6300 Three Chopt Road, Richmond, Va., Secretary.

AMERICAN RHEUMATISM ASSOCIATION, Waldorf-Astoria, New York, May 28-29. Dr. William H. Kammerer, 33 East 61st St., New York 21, Secretary.

AMERICAN SOCIETY FOR CLINICAL INVESTIGATION, Chalfonte-Haddon Hall, Atlantic City, N. J., May 4. Dr. William M. M. Kirby, University of Washington School of Medicine, Seattle 5, Secretary.

AMERICAN SOCIETY FOR THE STUDY OF STERILITY, Henry Hudson Hotel, New York, May 25-31. Dr. Walter W. Williams, 20 Magnolia Terrace, Springfield 8, Mass., Secretary.

AMERICAN THERAPEUTIC SOCIETY, The Biltmore, New York, May 28-31. Dr. Oscar B. Hunter Jr., 915 Nineteenth St. N.W., Washington 6, D. C., Secretary.

AMERICAN TRUDEAU SOCIETY, Hotel Statler, Los Angeles, May 18-22. Dr. John D. Steele, 1790 Broadway, New York 19, Secretary.

AMERICAN UROLOGICAL ASSOCIATION, Hotel Jefferson, St. Louis, May 11-14. Dr. Charles H. deT. Shivers, Boardwalk National Arcade Bldg., Atlantic City, N. J., Secretary.

ASSOCIATION OF AMERICAN PHYSICIANS, Haddon Hall, Atlantic City, N. J., May 5-6. Dr. W. Barry Wood Jr., 600 S. Kingshighway Blvd., St. Louis 10, Secretary.

CALIFORNIA MEDICAL ASSOCIATION, Biltmore Hotel, Los Angeles, May 24-28. Dr. Albert C. Daniels, 450 Sutter St., San Francisco 8, Secretary.

CATHOLIC HOSPITAL ASSOCIATION OF THE UNITED STATES AND CANADA, Kansas City, Mo., May 25-28. Rev. John J. Flanagan, S.J., 1438 South Grand Blvd., St. Louis 4, Director.

CONFERENCE OF PRESIDENTS AND OTHER OFFICERS OF STATE MEDICAL ASSOCIATIONS, New York, May 31. Mr. Thomas R. O'Brien, 634 North Grand Blvd., St. Louis 3, Secretary.

GEORGIA, MEDICAL ASSOCIATION OF, Savannah, May 10-13. Dr. David H. Poer, 875 West Peachtree St. N.E., Atlanta, Secretary.

IDAHO STATE MEDICAL ASSOCIATION, Sun Valley, June 14-17. Dr. Robert S. McKean, 305 Sun Bldg., Boise, Secretary.

ILLINOIS STATE MEDICAL SOCIETY, Hotel Sherman, Chicago, May 19-22. Dr. Harold M. Camp, 224 South Main St., Monmouth, Secretary.

KANSAS MEDICAL SOCIETY, Wichita, May 4-7. Dr. Dale D. Vermillion, 315 West Fourth St., Topeka, Secretary.

LOUISIANA STATE MEDICAL SOCIETY, Roosevelt Hotel, New Orleans, May 7-9. Dr. C. Grenes Cole, 1430 Tulane Ave., New Orleans 12, Secretary.

MAINE MEDICAL ASSOCIATION, Eastland Hotel, Portland, June 21-24. Mr. W. Mayo Payson, 142 High St., Portland 3, Executive Secretary.

MASSACHUSETTS MEDICAL SOCIETY, Hotel Statler, Boston, May 19-21. Dr. Robert W. Buck, 22 The Fenway, Boston 15, Acting Secretary.

MEDICAL LIBRARY ASSOCIATION, New House Hotel, Salt Lake City, June 16-19 Miss Louise C. Lage, Lilly Research Laboratories, 740 South Alabama St., Indianapolis 6, Secretary.

MINNESOTA STATE MEDICAL ASSOCIATION, Hotel St. Paul, St. Paul, May 18-20. Dr. B. B. Souster, 496 Lowry Medical Arts Bldg., St. Paul 2, Secretary.

MISSISSIPPI STATE MEDICAL ASSOCIATION, Biloxi, May 11-14. Mr. Roland B. Kennedy, 508 First Federal Bldg., Jackson, Executive Secretary.

NATIONAL TUBERCULOSIS ASSOCIATION, Statler and Biltmore hotels, Los Angeles, May 18-22. Mr. Kemp D. Battle, 1790 Broadway, New York 19, Secretary.

NEBRASKA STATE MEDICAL ASSOCIATION, Paxton Hotel, Omaha, May 11-14. Dr. R. B. Adams, 1315 Sharp Bldg., Lincoln 8, Secretary.

NEW JERSEY, MEDICAL SOCIETY OF, Haddon Hall, Atlantic City, May 17-20. Dr. Marcus H. Greifinger, 315 West State St., Trenton 8, Secretary.

NEW MEXICO MEDICAL SOCIETY, Hilton Hotel, Albuquerque, May 7-9. Dr. T. E. Kircher Jr., 221 West Central Ave., Albuquerque, Secretary.

NEW YORK, MEDICAL SOCIETY OF THE STATE OF, Hotel Statler, Buffalo, May 4-8. Dr. Walter P. Anderton, 386 Fourth Avenue, New York 16, Secretary.

NORTH CAROLINA, MEDICAL SOCIETY OF THE STATE OF, Hotel Carolina, Pinehurst, May 10-13. Dr. Millard D. Hill, 203 Capital Club Bldg., Raleigh, Secretary.

NORTH DAKOTA STATE MEDICAL ASSOCIATION, Clarence Parker Hotel, Minot, May 9-12. Dr. E. H. Boerth, Box 1198, Bismarck, Secretary.

OGDEN SURGICAL SOCIETY, Orpheum Theater, Ogden, Utah, May 20-22. Dr. Irwin B. McQuarrie, 401 Eccles Bldg., Ogden, Utah, President.

PACIFIC COAST OTO-OPHTHALMOLOGICAL SOCIETY, Los Angeles, May 24-28, Dr. H. P. House, 1136 West 8th St., Los Angeles 14, Secretary.

RHODE ISLAND MEDICAL SOCIETY, Providence, May 6-7. Dr. Thomas Perry Jr., 106 Francis Street, Providence, Secretary.

SOCIETY OF BIOLOGICAL PSYCHIATRY, Hotel Statler, Los Angeles, May 3. Dr. George N. Thompson, 2010 Wilshire Blvd., Los Angeles 5, Secretary.

SOCIETY FOR INVESTIGATIVE DERMATOLOGY, Belmont Plaza Hotel, New York, May 30-31. Dr. Herman Beerman, 255 South 17th St., Philadelphia 3, Secretary.

SOCIETY FOR PEDIATRIC RESEARCH, Hotel Traymore, Atlantic City, N. J., May 4-6. Dr. Sydney S. Gellis, 330 Brookline Ave., Boston 15, Secretary.

SOCIETY FOR VASCULAR SURGERY, Hotel Pierre, New York, May 31. Dr. George D. Lilly, 25 S.E. Second Ave., Miami 32, Fla., Secretary.

SOUTH CAROLINA MEDICAL ASSOCIATION, Columbia Hotel, Columbia, May 4-7. Dr. Robert Wilson Jr., 120 W. Cheves St., Florence, Secretary.

SOUTH DAKOTA STATE MEDICAL ASSOCIATION, Alex Johnson Hotel, Rapid City, June 14-16. Dr. G. I. W. Cottam, 300 First National Bank Bldg., Sioux Falls, Secretary.

SOUTHEASTERN ALLERGY ASSOCIATION, Andrew Jackson Hotel, Nashville, Tenn., May 15-16. Dr. Katharine B. MacInnis, 1515 Bull St., Columbia 1, S. C., Secretary.

SOUTHERN OREGON MEDICAL SOCIETY, Oregon Caves Chateau, Oregon Caves, Ore., June 10. Dr. R. Ray Johnson, Grants Pass, Ore., Secretary.

SOUTHWEST ALLERGY FORUM, Hotel Muehlebach, Kansas City, Mo., June 14-16. Dr. Frederic Speer, 2601 Parallel Ave., Kansas City 4, Kans., Secretary.

STUDENT AMERICAN MEDICAL ASSOCIATION, Edgewater Beach Hotel, Chicago, June 15-17. Mr. Russell F. Staudacher, 535 North Dearborn St., Chicago 10, Executive Secretary.

THE ENDOCRINE SOCIETY, Hotel Statler, New York, May 28-30. Dr. Henry H. Turner, 1200 North Walker St., Oklahoma City 3, Secretary.

U. S. CHAPTER, INTERNATIONAL COLLEGE OF SURGEONS, SURGICAL DIVISION MEETINGS:

CHICAGO, Congress Hotel, May 5-6. Dr. Karl A. Meyer, 30 North Michigan Ave., Chicago 2, Chairman.

UPPER PENINSULA MEDICAL SOCIETY, Escanaba, Mich., June 19-20. Dr. N. L. Lindquist, 1103 Ludington St., Escanaba, Mich., Secretary.

WESTERN SOCIETY OF ELECTRO-ENCEPHALOGRAPHY, Hotel Statler, Los Angeles, May 9-10. Dr. Sylvester N. Berens, 902 Boren Ave., Seattle, Secretary.

WYOMING STATE MEDICAL SOCIETY, Henning Hotel, Casper, June 11-13. Dr. Glenn W. Koford, P. O. Box 1252, Cheyenne, Secretary.

FOREIGN

BRITISH MEDICAL ASSOCIATION, Cardiff, S. Wales, July 13-17. Dr. A. MaCrae, B. M. A. House, Tavistock Square, London W.C.1, England, Secretary.

CANADIAN MEDICAL ASSOCIATION, Winnipeg, Manitoba, Canada, June 15-19. Dr. T. C. Routley, 135 St. Clair Avenue W., Toronto 5, Ontario, Canada, General Secretary.

CONGRESS OF INTERNATIONAL ANESTHESIA RESEARCH SOCIETY, Chateau Frontenac, Quebec, Canada, October 26-29. Dr. A. William Friend, 515 Nome Ave., Akron 20, Ohio, Chairman, Program Committee.

CONGRESS OF INTERNATIONAL LEAGUE AGAINST RHEUMATISM, Geneva and Zurich, Switzerland, Aug. 24-29. For information write: Dr. W. Tegner, The London Hospital, London E.1, England.

CONGRESS OF THE INTERNATIONAL SOCIETY OF ANGIOLOGY, Lisbon, Portugal, Sept. 18-20. Dr. Henry Haimovici, 105 East 90th St., New York 28, N. Y., U. S. A., Secretary.

CONGRESS OF THE INTERNATIONAL SOCIETY OF SURGERY, Lisbon, Portugal, Sept. 14-20. Dr. L. Dejardin, 141, rue Belliard, Brussels, Belgium, General Secretary.

EUROPEAN CONGRESS OF ALLERGOLOGY, Copenhagen, Denmark, May 20-23. Dr. Egon Brunn, Gersonavej 8, Hellerup, Copenhagen, Denmark, Secretary General.

INTERNATIONAL CONFERENCE ON THROMBOSIS AND EMBOLISM, Basle, Switzerland, July 15-19, 1954. Dr. W. Merz, Chief Medical Officer, Gynecological Clinic, University of Basle, Basle, Switzerland, Hon. Secretary.

INTERNATIONAL CONGRESS OF AUDIOLOGY, Leiden, Netherlands, June 5-6. Dr. H. A. E. ve Dishoeck, Leiden University, Leiden, Netherlands, President.

INTERNATIONAL CONGRESS OF ELECTROENCEPHALOGRAPHY AND CLINICAL NEUROPHYSIOLOGY, Boston, Mass., U. S. A., Aug. 18-21. Dr. Robert S. Schwab, Massachusetts General Hospital, Boston 14, Mass., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS OF THE EUROPEAN SOCIETY OF HAEMATOLOGY, Amsterdam, Holland, Sept. 8-12. Dr. M. C. Verloop, Mallesingle 15, Utrecht, Holland, Secretary.

INTERNATIONAL CONGRESS ON GENETICS, Bellagio, Italy, August 4. Prof. C. Barigozzi, Instituto de Genetica, Universita de Milano, 10 via Celoria, Milan, Italy, Secretary.

INTERNATIONAL CONGRESS OF GYNECOLOGY, Geneva, Switzerland, July 21-26, 1954. Dr. Maurice Fabre, 1, rue Jules-Lefebore, Paris IXe, France, General Secretary.

INTERNATIONAL CONGRESS OF HIPPOCRATIC MEDICINE, Evian, France, Sept. 3-6. Prof. P. Delore, 13 rue Jarente, Lyons, France, Secretary-General.

INTERNATIONAL CONGRESS FOR HISTORY OF SCIENCE, Jerusalem, Israel, August 3-7. Prof. F. S. Bodenheimer, Hebrew University, Jerusalem, Israel, President.

INTERNATIONAL CONGRESS OF INTERNATIONAL COLLEGE OF SURGEONS, Sao Paulo, Brazil, April 26-May 2, 1954. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U.S.A., Secretary-General.

INTERNATIONAL CONGRESS OF LOGOPEDICS AND PHONIATRICS, Milan and Stresa, Italy, Sept 1-7. Dr. Deso A. Weiss, 115 East 86th St., New York 28, N. Y., U. S. A., General Secretary.

INTERNATIONAL CONGRESS ON MEDICAL LIBRARIANSHIP, London, England, July 20-25. Mr. W. R. LeFanu, % London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C.1, England, Chairman.

INTERNATIONAL CONGRESS ON MENTAL HEALTH, University of Toronto, Toronto, Ontario, Canada, Aug. 14-21, 1954. For information write: Executive Officer, International Congress on Mental Health, 111 St. George St., Toronto, Ontario, Canada.

INTERNATIONAL CONGRESS OF MICROBIOLOGY, Rome, Italy, Sept 6-12. For information write: Dr. V. Puntoni, Citta Universitaria, Rome, Italy.

INTERNATIONAL CONGRESS ON OBSTETRICS AND GYNECOLOGY, Geneva, Switzerland, July 26-31, 1954. Prof. H. de Watteville, Maternité Hôpital Cantonal, Geneva, Switzerland, President.

INTERNATIONAL CONGRESS OF OTO-NEURO-OPHTHALMOLOGY, Bologna, Italy, May 3-7. Dr. Guiseppe Cristini, Clinica Oculistica, Policlinico, Bologna. Italy, General Secretary.

INTERNATIONAL CONGRESS OF OTORHINOLARYNGOLOGY, Amsterdam, Netherlands, June 8-13. Dr. W. H. Struben, J. J. Viottastraat 1, Amsterdam, Netherlands, Secretary.

INTERNATIONAL CONGRESS OF PAEDIATRICS, Havana, Cuba, Oct. 12-17. Prof. Felix Hurtado, 5a Avenue 124, Miramar, Havana, Cuba, President.

INTERNATIONAL CONGRESS OF RADIOLOGY, Copenhagen, Denmark, July 19-25. Professor Flemming Norgaard, 10 Oster Voldgade, Copenhagen K, Denmark, Secretary General.

INTERNATIONAL CONGRESSES OF TROPICAL MEDICINE AND MALARIA, Istanbul, Turkey, Aug. 28-Sept. 4. Professor Dr. Ihsan Sükrü Aksel, Tunel Meydam, Beyoglu, Istanbul, Turkey, General Secretary.

INTERNATIONAL CONVENTION OF X-RAY TECHNICIANS, Royal York Hotel, Toronto, Canada, June 28-July 2. For information write: Miss Beatrice Hurley, R.T., Registrar, St. Catherine Hospital, East Chicago, Ind., U. S. A.

INTERNATIONAL FERTILITY ASSOCIATION, Henry Hudson Hotel, New York, N. Y., U. S. A., May 25-31. Dr. Abner I. Weisman, 1160 Fifth Avenue, New York 29, N. Y., U. S. A., Associate Secretary General.

INTERNATIONAL GERONTOLOGICAL CONGRESS, London and Oxford, England, July 12-22, 1954. Prof. R. E. Tunbridge, General Infirmary, Department of Medicine, The University, Leeds, England, President.

INTERNATIONAL GYNAECOLOGICAL MEETING, Paris, France, May 22-23. For information write: Dr. Jacques Courtois, 1, rue Racine, St. Germain-en-Laye, Seine et Oise, France.

INTERNATIONAL HOSPITAL CONGRESS, London, England, May 25-30. Capt. J. E. Stone, 10 Old Jewry, London, EC2, England, Hon. Secretary.

INTERNATIONAL LEPROSY CONGRESS, Madrid, Spain, Oct. 3-10. Dr. Felix Contreras, Moreto 15, Madrid, Spain, Secretary.

INTERNATIONAL PHYSIOLOGICAL CONGRESS, Montreal, Canada, Aug. 31-Sept. 4. Dr. A. S. V. Burgen, Dept. of Physiology, McGill University, Montreal, Canada, Secretary.

INTERNATIONAL PSYCHO-ANALYTICAL CONGRESS, Bedford College, Regent's Park, London N.W.1, England, July 26-30. Dr. Ruth S. Eissler, 285 Central Park West, New York 24, N. Y., Hon. Secretary.

INTERNATIONAL VETERINARY CONGRESS, Stockholm, Sweden, Aug. 9-15. Prof. Axel Isaksson, Institute of Veterinary Medicine, Stockholm 50, Sweden, Secretary.

PACIFIC SCIENCE CONGRESS, Quezon City and Manila, Philippines, Nov. 16-28. Dr. Patrocinio Valenzuela, College of Pharmacy, University of the Philippines, Quezon City, Philippines, Secretary-General.

PAN AMERICAN CONGRESS OF THE MEDICAL PRESS, Buenos Aires, Argentine. July 12-16. Secretaria del Congress, 763 Uriburu, Buenos Aires, Argentine.

WORLD CONFERENCE ON MEDICAL EDUCATION, British Medical Association House, Tavistock Square, W.C.1, London, England, Aug. 22-29. Secretariat: World Medical Association, 2 East 103d St., New York 29, N. Y., U. S. A.

WORLD CONGRESS OF THE WORLD CONFEDERATION FOR PHYSICAL THERAPY, London, England, Sept. 7-12. Miss M. J. Neilson, Chartered Society of Physiotherapy, Tavistock House, South, Tavistock Square, London, W.C.1, England, Secretary.

WORLD MEDICAL ASSOCIATION, The Hague, Netherlands, Aug. 31-Sept. 7. Dr. Louis H. Bauer, 2 East 103d St., New York 29, N. Y., Secretary-General.

DEATHS

Gold, Irving Bachrach ⊕ Forest Hills, N. Y.; born in Poland, May 15, 1907; University of Cincinnati College of Medicine, 1932; following an internship and residencies at Metropolitan Hospital in Welfare Island, Cincinnati General Hospital, Harlem Hospital in New York, and Sea View Hospital in West Brighton, Staten Island, N. Y., practiced medicine in Flushing, N. Y., from 1935 to 1941; completed residency training in anesthesiology at French Hospital in New York, following which he served three and a half years in the U. S. Army as chief of anesthesia sections of general hospitals in England and France and as consultant to the Normandy Base Section; later director of anesthesia at Mount Sinai Hospital in Cleveland; formerly affiliated with the VA Hospital in Richmond, during which time he was on the faculty of the Medical College of Virginia; specialist certified by the American Board of Anesthesiology; member of the American Society of Anesthesiology; served on the staff of Beth Israel Hospital in New York City; assistant attending anesthesiologist at Prospect Heights Hospital in Brooklyn, where he died March 3, aged 45, of sarcoma.

Aaronson, Michael S. ⊕ Ansonia, Conn.; University and Bellevue Hospital Medical College, New York, 1913; school physician; affiliated with Griffin Hospital in Derby; died in Cedars of Lebanon Hospital, Los Angeles, Feb. 15, aged 65, of cerebral hemorrhage.

Adams, Bon O. ⊕ Riverside, Calif.; Medical College of Indiana, Indianapolis, 1901; member of the House of Delegates of the American Medical Association in 1940; past president of the Riverside County Medical Society; a fellow and formerly a member of the board of governors of the American College of Surgeons; for many years affiliated with the Colorado Fuel & Iron Company in Pueblo; on the staff of the Riverside Community Hospital; died Feb. 23, aged 80, of arteriosclerotic heart disease.

Adams, Harold Wilson ⊕ Somersworth, N. H.; University of Vermont College of Medicine, Burlington, 1935; died in Rochester Jan. 3, aged 44, of injuries received in an automobile accident.

Alexander, Walter Gilbert ⊕ Orange, N. J.; College of Physicians and Surgeons, Boston, 1903; president of the New Jersey State Tuberculosis League; served as state assemblyman; affiliated with Orange Memorial Hospital; died Feb. 5, aged 72, of hypertensive arteriosclerotic heart disease and pulmonary infarct.

Ambrose, William Harris, Delaplane, Va.; Eclectic Medical Institute, Cincinnati, 1899; served during World Wars I and II; died in Winchester (Va.) Memorial Hospital Feb. 6, aged 74, of cerebral vascular accident and essential hypertension.

Aran, Roberto Pedro, San Juan, Puerto Rico; University of Tennessee College of Medicine, Memphis, 1948; died in the Walter Reed Hospital, Washington, D. C., Feb. 11, aged 29.

Argus, Francis, Buffalo; St. Louis University School of Medicine, 1913; served during World War I; affiliated with Emergency Hospital and the Sisters of Charity Hospital; died in the VA Hospital Feb. 9, aged 67.

Atwell, David Roger ⊕ East Orange, N. J.; New York Homeopathic Medical College, New York, 1885; died March 3, aged 94, of uremia.

Ayres, Floyd Freeman, Akron, Ohio; Chicago College of Medicine and Surgery, 1909; died in February, aged 68.

Ayres, Philip S., Wichita, Kan.; University Medical College of Kansas City, 1899; died in Wesley Hospital Feb. 4, aged 87, of cerebral hemorrhage, uremia, and terminal pneumonia.

Baird, Julia March, Elyria, Ohio; Woman's Medical College of Pennsylvania, Philadelphia, 1896; died Feb. 11, aged 88, of cerebral hemorrhage.

⊕ Indicates Member of the American Medical Association.

Barragy, Joseph Carroll, St. Louis; St. Louis College of Physicians and Surgeons, 1913; died in the City Hospital Feb. 8, aged 65.

Batten, Grover A. ⊕ Honolulu, Hawaii; Johns Hopkins University School of Medicine, Baltimore, 1914; fellow of the American College of Surgeons; past president of the Hawaii Territorial Medical Association; one of the founders and once president of the Honolulu County Surgical Society; for one term a member of the state board of medical examiners; served as a member of the board of health; affiliated with St. Francis, Queen's, and Kapiolani Maternity hospitals; died Feb. 20, aged 68.

Beachler, John Frederick Sr., Piqua, Ohio; Starling-Ohio Medical College, Columbus, 1913; fellow of the American College of Surgeons; affiliated with Urbana (Ohio) Hospital, Stouder Memorial Hospital in Troy, and Wilson Memorial Hospital in Sidney; member of the staff of Piqua Memorial Hospital, where he was founder and president and where he died March 4, aged 63, of a cerebrovascular accident.

Beckmann, Paul, La Grange, Texas; Medical Department of Tulane University of Louisiana, New Orleans, 1892; died in the Fayette Memorial Hospital Jan. 13, aged 85, of auricular fibrillation.

Berger, David George, St. Louis; State University of Iowa College of Medicine, Iowa City, 1948; served during World War II; attached to the City Hospital; died in March, aged 27.

Bertolet, Walter Melot ⊕ Reading, Pa.; Jefferson Medical College of Philadelphia, 1902; served during World War I; died Feb. 7, aged 79, of acute coronary occlusion.

Biggers, George Lee, La Grande, Ore.; University of Oregon Medical School, Portland, 1903; member of the Radiological Society of North America; died Feb. 14, aged 79.

Biggs, Robert Alan ⊕ North Branch, Mich.; University of Illinois College of Medicine, Chicago, 1948; interned at Hurley Hospital in Flint, Mich.; on the staff of the Marlette (Mich.) Community Hospital; died Feb. 18, aged 29.

Bisher, Peter Manel, New York City; University and Bellevue Hospital Medical College, New York, 1899; died in the Medical Arts Center Hospital Feb. 16, aged 78, of coronary thrombosis.

Bowker, Frank Clarence ⊕ Morris, Ill.; Hahnemann Medical College and Hospital, Chicago, 1899; past president of the Grundy County Medical Society and the county health board; for many years member of the school board; for six years city alderman; charter staff member of the Morris Hospital; one of the founders and a past president of the Morris Library Association; died March 29, aged 80, of cererbal thrombosis.

Bray, Eulys Willson ⊕ Turlock, Calif.; College of Medical Evangelists, Loma Linda and Los Angeles, 1938; certified by the National Board of Medical Examiners; served during World War II; died in Altadena Jan. 27, aged 42, of coccidioidomycosis.

Breon, Guy L. ⊕ Detroit; Hahnemann Medical College and Hospital, Chicago, 1915; died Feb. 15, aged 67.

Bryant, Charles Page, Seattle; Jefferson Medical College of Philadelphia, 1905; died Jan. 23, aged 72, of coronary thrombosis and bilateral bronchopneumonia.

Burke, Walter Thomas, Medford, Mass.; Harvard Medical School, Boston, 1900; for many years chairman of the board of health; on the staff of the Lawrence Memorial Hospital; died Feb. 20, aged 84, of cerebrovascular accident.

Calicchio, David Julius ⊕ Boston; Middlesex College of Medicine and Surgery, Cambridge, Mass., 1920; member of the New England Obstetrical and Gynecological Society; owner and surgeon in chief at the Bay State Hospital; died March 7, aged 61, of acute coronary thrombosis.

Carleton, Lawrence Heard ✠ Detroit; University of Oklahoma School of Medicine, Oklahoma City, 1917; served during World War I; on the staff of the Ford Hospital; died Jan. 10, aged 61, of coronary thrombosis.

Carpenter, Samuel Aloysius ✠ Philadelphia; Medico-Chirurgical College of Philadelphia, 1903; died March 18, aged 71, of coronary thrombosis.

Cartland, John Everett ✠ Auburn, Me.; Medical School of Maine, Portland, 1914; past president of the Franklin County Medical Society; for many years member of the school board; died in the Central Maine General Hospital in Lewiston, Feb. 17, aged 63, of Hodgkin's disease.

Chapman, Lee Jackson, Lancaster, Ohio; Ohio Medical University, Columbus, 1896; died in Columbus Feb. 14, aged 85.

Chase, Henry Melville ✠ Boston; Harvard Medical School, Boston, 1901; an Associate Fellow of the American Medical Association; member of the American Urological Association; fellow of the American College of Surgeons; for many years surgeon in chief at Boston Dispensary; died Feb. 15, aged 78, of cerebral hemorrhage.

Clark, George E. ✠ Detroit; Detroit College of Medicine, 1888; died in Port Franks, Ontario, Canada, Feb. 17, aged 92, of pneumonia.

Collins, Charles Farnham ✠ New York City; College of Physicians and Surgeons, medical department of Columbia College, New York, 1886; member of the American Clinical and Climatological Association; formerly clinical professor of pediatrics at New York University College of Medicine; served on the staffs of the New York Nursery and Childs Hospital, Lying-In Hospital, and St. Luke's Hospital; died Feb. 28, aged 93.

Connell, Wade Hampton Lee ✠ Hot Springs National Park, Ark.; National Normal University College of Medicine, Lebanon, Ohio, 1889; formerly member of the school board; on the staff of St. Joseph's Infirmary; died in Lancaster, S. C., Feb. 7, aged 89, of coronary thrombosis.

Conrad, Clyde Douglas ✠ Charleston, S. C.; Medical College of the State of South Carolina, Charleston, 1943; specialist certified by the American Board of Pediatrics; served during World War II; assistant professor of pediatrics at his alma mater; died in the Roper Hospital Feb. 12, aged 35, of cerebral hemorrhage.

Cootey, Sherwin Aldrich ✠ Rutland, Vt.; University of Vermont College of Medicine, Burlington, 1906; served during World War II and overseas during World War I; on the staff of the Rutland Hospital; died Feb. 15, aged 70, of arteriosclerotic heart disease.

Corkern, Ronald Eston ✠ Natchitoches, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1934; affiliated with Corkern Hospital-Clinic; died Feb. 20, aged 46, of coronary occlusion.

Corkrean, John Ervin, Jane Lew, W. Va.; University of Louisville (Ky.) Medical Department, 1909; served during World War I; died March 17, aged 66.

Dagnault, J. Alphonse ✠ Rockford, Ill.; Chicago College of Medicine and Surgery, 1913; affiliated with St. Anthony Hospital, where he died Feb. 7, aged 68, of hypostatic pneumonia.

Davis, Thomas Carroll ✠ Philadelphia; Jefferson Medical College of Philadelphia, 1909; also a graduate in pharmacy; retired clinical professor of laryngology and rhinology at Temple University School of Medicine; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; served during World War I; affiliated with Temple University Hospital, where he died March 5, aged 71, of heart disease.

Davis, William Carle ✠ Columbus, Ohio; Medical College of Ohio, Cincinnati, 1896; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; affiliated with Grant and Children's hospitals; died in Mount Carmel Hospital March 8, aged 78.

Dowdy, Robert Willborne, Florala, Ala.; University of Tennessee Medical Department, Nashville, 1891; died Jan. 29, aged 91, of angina pectoris.

Duncan, Edgar Cecil ✠ Fredonia, Kan.; Beaumont Hospital Medical College, St. Louis, 1901; served on the state board of medical registration and examination; in 1931 member of the House of Delegates of the American Medical Association; past president of the Kansas Medical Society; formerly mayor of Fredonia; served overseas during World War I; died Feb. 12, aged 77, of cerebral hemorrhage.

Dyer, Clyde Percy ✠ St. Louis; born in Moundville, Mo., May 14, 1884; Washington University School of Medicine, St. Louis, 1911; an Associate Fellow of the American Medical Association; specialist certified by the American Board of Ophthalmology; past president of the St. Louis County Medical Society; member of the American Academy of Ophthalmology and Otolaryngology; editor and manager of *St. Louis County Medical Society Bulletin;* recently placed on the staff of the *Journal of the Missouri State Medical Association;* died in the Deaconess Hospital Feb. 19, aged 68.

Dzienis, John Paul, Newark, N. J.; Temple University School of Medicine, Philadelphia, 1932; affiliated with Veterans Administration; died in St. Francis Hospital, Trenton, Feb. 23, aged 47, of hemorrhage from an esophageal varix and cirrhosis of the liver.

Edwards, Joseph Madison, Cross Timbers, Mo.; St. Louis College of Physicians and Surgeons, 1915; died Feb. 6, aged 73, of cerebral hemorrhage.

Eiland, Robert John ✠ Clanton, Ala.; (licensed in Alabama in 1907); died Feb. 10, aged 80, of hypostatic pneumonia.

Forkosh, Sydney Richard ✠ Chicago; University of Illinois College of Medicine, Chicago, 1930; superintendent of the Manor Hospital, where he died March 1, aged 46, of congestive heart disease.

Freedman, Theodore ✠ Little Rock, Ark.; St. Louis University School of Medicine, 1907; served on the staff of the Missouri Pacific Hospital; died Feb. 7, aged 68, of heart disease.

Gardner, Alfred E. ✠ Wichita, Kan.; University of Louisville (Ky.) Medical Department, 1895; fellow of the American College of Surgeons; served during World War I; member of the city public library; affiliated with St. Francis Hospital, where in 1924 he was president of the medical staff; died in VA Hospital Feb. 9, aged 83, of cerebral hemorrhage.

Gardner, Otho Winton, Greensboro, Fla.; Atlanta College of Physicians and Surgeons, 1901; died in Gadsden County Hospital in Quincy Jan. 29, aged 78, of spontaneous pneumothorax, chronic glomerular nephritis, and virus pneumonia.

DIED WHILE IN MILITARY SERVICE

Cobbey, Theodore Sabin Jr. ✠ Canton, Ohio; born in Canton, Jan. 30, 1919; Harvard Medical School, Boston, 1943; appointed a lieutenant (jg) in the medical corps of the U. S. Naval Reserve in December, 1943; became a lieutenant in August, 1946; during World War II served as medical officer with several construction battalions in the Pacific area and aboard various types of ships of the Pacific fleet; released to inactive duty in 1946; since recalled into active military service in January, 1953, assigned to the Naval Hospital in Portsmouth, Va., where he died Feb. 19, aged 34.

Standerfer, James Beverly ✠ Captain (MC), U. S. Army, Texarkana, Texas; University of Arkansas School of Medicine, Little Rock, 1950; interned at the University Hospital in Little Rock; served during World War II; began active duty as a first lieutenant in 1950; on duty with the 187th Airborne Regimental Combat Team in Japan, where he died Nov. 20, aged 28, in a plane crash while on an official mission.

GOVERNMENT SERVICES

OFFICE OF DEFENSE MOBILIZATION

Distribution of Gamma Globulin.—The Office of Defense Mobilization April 17 announced plans for the distribution of gamma globulin as a poliomyelitis preventive. Under the plan, developed by the Office of Defense Mobilization's Health Resources Advisory Committee based on the recommendations of the National Research Council, the state and territorial health officers, and other agencies, state health departments will be the sole distributors of gamma globulin for poliomyelitis inoculations to local health departments and private physicians. Thus, the responsibility for the distribution of each state's supply of gamma globulin is in the hands of the state health officer. No other agencies are authorized to distribute gamma globulin within the state.

The Office of Defense Mobilization will determine the basic allocation to a state, based on the average number of poliomyelitis cases reported in that state over a five year period. Additional allocations will be made when cases exceed this average. Gamma globulin will also be provided within the limits of available supplies for community-wide inoculations in areas in which poliomyelitis is epidemic. The plan is completely fluid and can be modified as experience dictates during the epidemic months. Gamma globulin, a blood derivative, is being made available through the American National Red Cross Blood Collection Program and the National Foundation for Infantile Paralysis.

Each state health officer will be responsible for developing allocation plans to fill the needs of his state. Several criteria for the use of gamma globulin, however, have been recommended by the National Research Council to obtain the most effective use of the supply at hand. Among these criteria are the provisions of gamma globulin to other members of households in which poliomyelitis occurs, particularly persons under 30 and pregnant women. Basic allocations to states will be calculated by multiplying 60 cc. by the average number of cases over a five year period. Additional allocations will be based on 60 cc. times the number of cases in excess of the normal average. About 57% of the total supply of gamma globulin available for poliomyelitis inoculations will be distributed to state health departments on the basis of this formula. An additional 33% of the total supply will be available for mass prophylaxis, and 10% will be assigned for contingencies. The U. S. Public Health Service will act as the Office of Defense Mobilization's distributing agent for gamma globulin to be used for poliomyelitis. The Public Health Service will receive the requests of state health departments and will place shipment orders with the producers in accordance with policies established by the Office of Defense Mobilization.

Allocation for Measles and Infectious Hepatitis.—According to the plan, the states and territories shall be allocated prophylactic doses of gamma globulin not to exceed 1.5 times the number of cases represented by the five year (1947-1951) median for measles, except that the allocation to any state or territory shall not be less than the mean annual distribution of Red Cross gamma globulin during the five year fiscal year period 1948-1952. The reported incidence of measles in the states and territories shall be reviewed at monthly intervals, and supplementary allocations may be made on the basis of unusual measles morbidity.

Packaging.—Gamma globulin for the prophylaxis of measles and infectious hepatitis shall be packaged in 2 cc. vials. Gamma globulin for the prophylaxis of poliomyelitis shall be packaged in 10 cc. vials.

Dosage.—The poliomyelitis prophylactic dose recommended, irrespective of the method used, is 0.14 cc. per pound of body weight, which is believed to be the minimal effective dose. When used for the prophylaxis of contacts of clinically diagnosed cases of poliomyelitis, the following criteria are recommended: (*a*) household contacts 30 years of age or under, and (*b*) pregnant women of any age.

Distribution Within the State or Territory.—While it is realized that the exact method of distribution will vary within the states and territories, it is recommended that: 1. Private physicians should request gamma globulin from the local health department or other health authority. 2. In order to obtain gamma globulin for prophylaxis, physicians should be required to furnish the name and date of onset of the case, as well as the names, ages, and weights of household contacts to be inoculated. 3. It is also recommended that the basic allocation of 60 cc. per case reported be interpreted to indicate the average amount needed for prophylaxis of household contacts of clinically diagnosed cases. The actual amount distributed to the physician for this purpose will vary depending on the number and ages of the household contacts involved.

PUBLIC HEALTH SERVICE

Pioneer in Fluoridation of Water Supplies Retires.—After more than 30 years of active duty as an officer in the U. S. Public Health Service, H. Trendley Dean, D.D.S., has retired. In his announcement, the Surgeon General points out that Dr. Dean was a pioneer in research that led to the use of fluoridated water to reduce dental decay in children. Dr. Dean's interest in the relation of fluoride to dental caries grew out of the work of Dr. Frederick S. McKay, who as a young practicing dentist in Colorado Springs, Colo., noticed a curious and nonremovable stain on the teeth of children who were his patients. Subsequent research conducted over the next 30 years by Dr. McKay, led to the knowledge that the stain was caused by minute quantities of fluorides in public and private water supplies.

Dr. Dean was assigned by the Public Health Service in 1931 to determine where in the United States persons drank water containing fluoride and how it caused dental fluorosis—mottled enamel. In seeking the answers to these questions, he made the discovery that persons with mild cases of fluorosis had hard teeth that resisted dental decay. In 1942, after a study of 21 cities, Dr. Dean and his colleagues at the National Institutes of Health were able to determine that one part of fluoride to a million parts of water was sufficient to inhibit dental decay without causing fluorosis. At this point, the research program had reached the stage where the addition of fluoride to public water supplies was ready for trial. Two cities in Michigan were selected: Grand Rapids and Muskegon, both of which got their water from fluoride-free Lake Michigan. The water supply of Grand Rapids was fluoridated in 1945; the water of Muskegon was not. In 1951, examinations at Grand Rapids showed that the 6-year-old children had 65% less dental decay than 6-year-old children in that city had in 1944-1945. At Muskegon, there was little difference between the 1944-1945 rates and those of 1951.

Today, more than 650 communities in the United States are fluoridating their water supplies, and about 300 more have approved similar plans. Dr. Dean's work has given him an international reputation. He lives at 224 North Jackson St., Arlington, Va.

Laboratory Diagnosis of Rabies.—The U. S. Public Health Service announces that a course in the laboratory diagnosis of rabies will be held Nov. 9-13, 1953, at the Communicable Disease Center in Chamblee, Ga. The course is designed as a refresher course to insure proficiency in the various aspects of rabies diagnosis. There are no tuition or laboratory fees, but travel and living expense must be paid by the person attending or his employer. Applications should be addressed to Mrs. Ruth C. Bessman, Laboratory Training Services, Communicable Disease Center, P. O. Box 185, Chamblee, Ga.

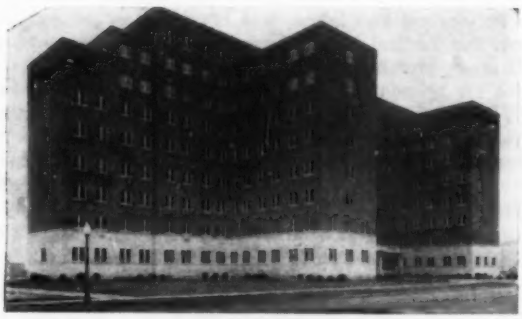
NEW ORLEANS

BALTIMORE

EAST ORANGE, N. J.

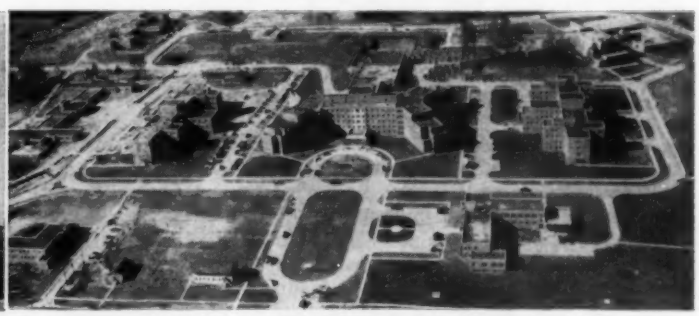
NEW VETERANS' HOSPITALS COMPLETED DURING 1952

The new VA Hospitals illustrated on this page were completed during the calendar year 1952 with the exception of Salisbury, N. C. A picture of the hospital at Boston was not available. As of Jan. 31, 1953, the total number of VA Hospitals in operation was 158 with a total bed capacity of 118,238, while 15 new hospitals were still under construction and 5 more were in the planning stage. The total veteran population in civilian life as of that date was 19,847,000 of whom 105,513 were VA patients in hospitals and of these 96,610 were in VA Hospitals and 6,903 were in non-VA Hospitals. Illustrations of new veterans' hospitals completed during the calendar years 1949, 1950, and 1951 appeared in The Journal, May 6, 1950, page 123, March 10, 1951, page 748, and March 1, 1952, page 760.



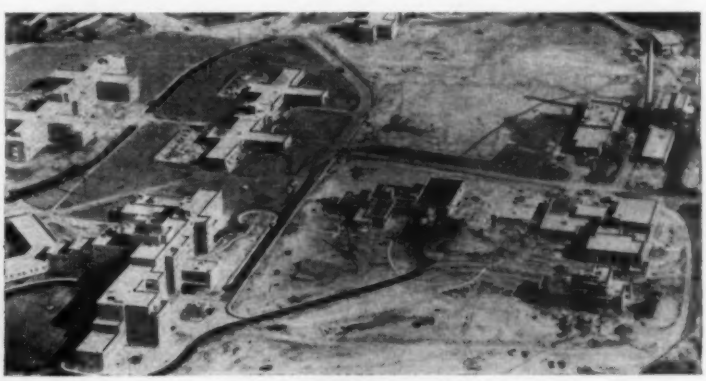
INDIANAPOLIS

IOWA CITY



SALISBURY, N. C.

BIRMINGHAM, ALA.



SALT LAKE CITY

FOREIGN LETTERS

AUSTRALIA

Short Stay in Maternity Hospitals.—Domiciliary midwifery has almost disappeared in Australia. Nearly all expectant mothers receive antenatal supervision and go to a well-equipped maternity hospital for their confinement. This has placed a heavy strain on the beds in maternity hospitals, and normal healthy patients are expected to leave as early as nine or even eight days after the birth. At the Melbourne Women's Hospital a maternity convalescent unit is being built in quiet garden surroundings to which mothers and babies who have had a normal delivery will be transferred after two days. They will stay there for 10 days. During that time instruction in mothercraft will be given. A parallel plan is to allow normal mothers to return to their homes after 48 hours provided a report on a visit to the home by the hospital almoner shows that adequate help is available and the home conditions are suitable. The mother would be visited by a trained nurse twice daily at first, gradually decreasing the visits as progress took place.

Controversy over the Morning Sponge Bath.—In some hospitals, the patients are awakened and receive their daily sponge bath as early as 2:00 a. m. It is the general custom that half the patients must be washed by the night nursing staff before they go off duty at 6:00 a. m. In this way, the beds and rooms can be cleaned and tidied, and breakfast served and removed before the medical officers begin their morning rounds at about 8:30 a. m. Nursing staffs, however, object to "broken shifts," which are an unavoidable result of having every nurse on duty early in the morning, and yet providing continuity of nursing service until the night staff comes on duty at 10:00 p. m. The patients say that their best sleep of the night is disturbed by the early waking. So the problem is looming of whether the patients can be washed at any time during the day by nurses who come on duty at a time to enable them to have a straight day of duty.

Diacetylmorphine Consumption.—Australia now consumes more diacetylmorphine (heroin) per person than any country in the world except Finland. The total consumption has doubled during the past five years. A recent inquiry revealed no evidence of serious addiction or illicit use. Diacetylmorphine is tightly controlled in Australia, and there are few addicts, most of whom are known to health departments. The main use of diacetylmorphine is in medically prescribed cough mixtures, particularly diacetylmorphine lincture. The drug is also widely used in injections after abdominal and other major operations to minimize the undesirable side-effects of morphea.

Representatives of Russia at the United Nations Commission on Narcotic Drugs had alleged that Australia was exporting diacetylmorphine to certain Pacific islands. Small exports for strictly medical purposes had been made, but even these have been halted for sometime. The Health Minister, Sir Earle Page, has now announced that imports of diacetylmorphine into Australia will be sharply cut, and its use will be restricted to injections by physicians. It will no longer be available for use in cough mixtures. The health department will discuss with representative medical bodies the possibility of reducing or discontinuing the legitimate use of diacetylmorphine in medical practice.

No Rabies in Australia.—There has never been a human case of rabies in this country. This is due to the strict animal quarantine exercised by the Commonwealth Department of Health. Over 1,000 animals including some 400 dogs are imported into Australia each year. All must undergo prolonged quarantine before being released. There are no exceptions. Any animal showing even doubtful symptoms is immediately destroyed.

The items in these letters are contributed by regular correspondents in the various foreign countries.

BRAZIL

Bacteriology of Sinusitis.—In a paper read before the department of otorhinolaryngology of the Associacão Paulista de Medicina, Drs. Augusto de Escragnole Taunney and Mauro Candido de Souza Dias emphasized the frequent occurrence of resistance of acute and chronic infections of the upper respiratory tract to treatment with penicillin and other antibiotics. They discussed experiments that they had performed: A culture was made from the sinus exudate of 45 patients with sinusitis and the nasal mucus of 25 clinically normal persons. The micro-organism found was isolated, identified, and submitted to sensitivity tests to the following antibiotics: penicillin, streptomycin, chloramphenicol, aureomycin, and oxytetracycline ("terramycin"). The sinus exudate was obtained from the sinus cavity in three different ways: by trepanation of the anterior wall, by the puncture of the inferior meatus, and by aspiration of the middle meatus. In the normal patients, the mucus was removed from the middle meatus with a platinum wire and planted directly into the medium. A comparative study of the organisms found in the infected and normal patients showed a difference. In the former there was a predominance of staphylococci, Hemophilus bacteria, pneumococci, and Streptococcus viridans organisms; in the latter, staphylococci and diphtheroids appeared most frequently, and the other organisms were absent. The sensitivity tests were performed on all the material with penicillin and chloramphenicol; with the other antibiotics, tests were made in part of the material. The results were as follows: Chloramphenicol presented the greatest activity against the gram-positive cocci. Penicillin was uniformly active against streptococci and pneumococci, but ineffective in a great percentage of the staphylococci.

First Regional South American Congress of the American College of Surgeons.—The American College of Surgeons held in São Paulo, Brazil, its first regional South American congress. The official opening session was at the auditorium of the Associacão Paulista de Medicina on Feb. 9 at 9:30 p. m. Dr. Moacyr E. Alvaro, president of the congress, opened the meeting in the presence of a representative of the governor of the state of São Paulo; the Cardinal D. Carmello Motta; Dr. Harold L. Foss, president of the American College of Surgeons; Dr. Alipio Correia Netto, president of the Brazilian Medical Society; and Dr. Benedito Montenegro, president of the Medical and Surgical Society of São Paulo. There were also present more than 100 surgeons from the United States and 300 from other countries. Between Feb. 9 and 12 many scientific sessions were held. Qualified surgeons, from the United States, Peru, Chile, Argentina, Uruguay, Equador, Cuba, and all parts of Brazil, read important papers on subjects concerning anesthesiology, experimental surgery, gastroenterology, neurosurgery, obstetrics, gynecology, ophthalmology, orthopedics, traumatology, otorhinolaryngology, pediatric surgery, peroral endoscopy, plastic surgery, proctology, thoracic surgery, and urology. During the congress there was an exhibition of old and rare books illustrating the history of surgery from antiquity to the 17th century. These books are part of the collection of Dr. Antonio Bernardes de Oliveira, professor of surgery of the Escola Paulista de Medicina. The Brazilian hospitality strengthened bonds of friendship among surgeons of all countries of the Americas.

Brazilian Surgeons to Meet in Curitiba.—The second Congress of the Brazilian Section of the International College of Surgeons will be held in Curitiba, Paraná, south of Brazil, on Oct. 5-9, 1953. Three subjects will be submitted to discussion: death under anesthesia, thoracotomies, and biliary tract surgery. At the same place will be held simultaneously the first Pan-American Congress of the International College of Surgeons, with participation of distinguished surgeons from the entire western hemisphere.

ITALY

Convention on Orthopedics.—The annual convention of the Italian Society of Orthopedics and Traumatology was held in Genoa under the chairmanship of Prof. Carlo Marino-Zuco, director of the University of Rome Clinic. The only subject of discussion this year was the shoulder, and two reports were presented, one on paralysis of the shoulder and the other on periarthritis of the shoulder.

Paralysis of the Shoulder.—Drs. Roasenda and Strata, who reported on the first subject, classified paralysis of the shoulder from the etiological point of view, reviewed the symptoms, discussed in detail the therapeutic problem, and pointed out that the choice of treatment should be made only when the diagnosis of paralysis is established beyond doubt. They said that surgical treatment for functional restoration may be deferred for several years after the beginning of symptoms and is not related to the cause of the condition. Therefore, caution is needed to avoid surgical treatment too early.

As for treatment, the speakers said that nerve transposition and neurotization give doubtful results. Muscle grafts are indicated for substitution for a single muscle. When the deltoid muscle is involved, the best results are obtained when this muscle is not completely paralyzed, even though it cannot fulfill its function. If the muscle lesion involves not only the deltoid but two or more muscles of the scapular girdle, then scapulopexy can give gratifying results. Of the various types of therapy, scapulohumeral arthrodesis is the treatment of choice in patients with a flail shoulder but with a perfect scapular girdle. When paralysis of the abductor muscles of the shoulder is associated with paralysis of the trapezius or of the serratus magnus, transplants for these muscles must be made before the arthrodesis is done.

Periarthritis of the Shoulder.—The second report, on periarthritis of the shoulder, was read by Professor Bonola, who avoided the subject of pains of the shoulder due to extra-articular reflex disorders and discussed diffuse and localized periarthritis. On the basis of study of his own cases (about 110), Professor Bonola believes that periarthritis should be considered a syndrome that involves the following anatomic structures: the acromion, deltoid muscle, biceps tendon, and tuberosity. It occurs mainly during maturity and old age as a result of degenerative and involutional changes that may be clinically silent. These degenerative and involutional changes are observed in a high percentage of necroscopies and are the anatomic and pathological basis of periarthritis of the shoulder.

The onset is due mainly to the association of various predisposing and concurrent factors of traumatic, ischemic, hereditary and constitutional, toxic, and neurovegetative origin, but the initiating factor is still unknown. Although all the anatomic structures listed are involved in periarthritis, the main histological alterations occur in the cuff of the rotatores and the cuff of the subacromial deltoid muscle, muscles which are oftener liable to wearing off and chaffing until a lesion is produced. Minor traumas are important from the degenerative standpoint, but in the pathogenesis of periarthritis major trauma has some importance. A major trauma had occurred in 71.8% of Bonola's cases, although the scapulohumeral girdle had not been fractured in any case.

Many times the differential diagnosis of the various entities that constitute periarthritis of the shoulder is difficult. Arthrography of the bursa with contrast mediums is suggested in cases in which diagnosis is difficult, especially when laceration of the cuff is suspected. In 42.6% of the cases, calcifications were found that invaded not only the bursa but all the anatomical structures already mentioned and sometimes also some of the synovial bursae and the tendon insertions of the extremity.

Calcareous bursitis constitutes most of the times the acute period of the syndrome. The calcifications of the bursa will disappear in short time, often in the course of clinical evolution and independently of the therapy that was used. Radiographic investigation is an indispensable diagnostic adjuvant, since with it the entire evolutionary cycle of the syndrome can be followed. In fact, each phase has its characteristic radiographic manifestations.

About 6,000 cases of periarthritis of the shoulder have been reported. Periarthritis affects mainly mature persons. When the precipitating factor is a trauma, it affects mostly the right shoulder in males. In some cases clinical recovery occurs without treatment or with the most diverse treatments, but in most other cases there is slow and progressive involution toward diffuse fibrosis and rigidity of the shoulder. Complete recovery was obtained in 26.1% of the speaker's cases and improvement in 63%.

Many treatments for periarthritis have been advanced, but Professor Bonola believes that roentgen therapy is the method of choice, especially when the condition is acute. Patients with chronic periarthritis and rigidity may be benefited by the non-surgical orthopedic adjuvants advocated by Duplay. Operations for removal of the bursa or calcium deposits, reconstruction of the cuff of the rotatores, and reconstruction of the long head of the lacerated biceps must be limited to cases in which all other treatments have failed and in which there are undoubted signs of complete laceration.

The medicolegal aspects and the associations with other conditions such as myocardial infarction, coronary artery disease, and toxic diffuse goiter have great importance in the study of periarthritis of the shoulder. The association of periarthritis with other conditions presents many new and complex problems that will be solved only by close cooperation of investigators working on the various aspects.

LONDON

Hazards of Barium Meals.—Two interesting examples of gastrointestinal perforation following barium meals are recorded in *The Lancet* (2:1245-1247 [Dec. 27] 1952). One is the case of a woman, aged 67, who was given a barium meal following a provisional diagnosis of nervous dyspepsia. When she returned 24 hours later for the follow-up examination she gave a history of abdominal pain of several hours' duration and was found to have generalized abdominal tenderness. It was considered that the pain might be due to hard masses of barium in the rectum and colon, and two rectal wash-outs were given. As her condition gradually worsened, laparotomy was performed and she was found to have a perforation in the pelvic colon 2 in. above the peritoneal reflection. The colon showed no abnormality at this point or elsewhere. No explanation is forthcoming why masses of inspissated barium should have caused perforation of an apparently normal colon, and the authors have been unable to trace another similar case in the literature, though there are several reports of perforation of the colon occurring following a barium meal in patients with diseased colons.

The other case concerns a 34-year-old Greek ship's officer whose duodenal ulcer perforated immediately following a barium meal. The patient recovered after a stormy postoperative convalescence, which included intestinal obstruction caused by the ingested barium. In recording this case the reporting surgeon draws attention to the fact that in all the cases published there had been a recent exacerbation of symptoms as in the case that he presents. It is therefore suggested that in such cases the barium merely accelerates the perforation, and he strongly deprecates the custom of carrying out a barium meal examination during the exacerbation of ulcer symptoms. "The radiographic demonstration of an ulcer in the acute phase does not in any way alter the treatment, and only exposes the patient to additional hazards."

Mortality Statistics.—A new feature introduced into the Registrar General's "Statistical Review of England and Wales for 1950," which has recently been published, compares mortality statistics in the six major urban areas of the country. These figures show a striking variation. Thus, in Greater London the mortality was 8% below the average for England and Wales, whereas in Tyneside, the big industrial center of Northeast England, it was 22% above the national average, and in

Southeast Lancashire, the great cotton manufacturing and coal mining area, it was 17% above the average. The rural areas, on the whole, were well below the average; for instance the rate was 14% below the national average in Buckinghamshire, Norfolk, and Surrey. A high infantile mortality is obviously one of the factors responsible for these disturbing discrepancies. The national death rate at ages under 1 year of age is the lowest ever recorded in any year in this country —30 per 1,000 related live births, compared with 32 in 1949. In Durham, however, in Northeast England, the comparative rate was 40, while in several Lancashire towns it ranged from 42 to 48. Greater London was well below the national average, with a figure of 25 per 1,000, and Bristol was even lower at 23 per 1,000. Judging from these mortality statistics, Cornwall and Somerset would appear to favor the will to live, one of the lowest death rates being that in Padstow in Cornwall, where the death rate was 44% below the national average. The total death rate for the country in 1950 was 510,301, which represents a rate of 11.6 per 1,000 population, compared with 11.7 in 1949. Between 1949 and 1950 there was an improvement in every age group except those over 75 years; the greatest improvement was from birth to 4 years, where the rate fell by 13% to 6.69 per 1,000 population.

Deaths from cancer rose, 85,270 compared with 83,204 in 1949, and accounted for 17% of all deaths. The increase in deaths from cancer of the respiratory system (mainly cancer of the lung) continued, and, at 312 per million, the rate was double what it was in 1940. Tuberculosis accounted for 15,969 deaths, compared with 19,797 in 1949. There were 7,760 cases of acute poliomyelitis, of which 755 were fatal. Deaths from poisoning and violence showed an increase: 11,905 men and 6,984 women, compared with 11,712 men and 6,801 women in 1949. Of these deaths, 4,523 were due to road accidents and 4,471 (2,885 men and 1,586 women) were due to suicide or self-inflicted injury. Of 8,554 deaths unrelated to transportation accidents, 1,325 occurred at work, and of these, 414 were due to falls, 347 to falling objects, and 169 to machinery. A new table shows accidental deaths other than transportation accidents according to the place where the accident happened. It is thus possible for the first time to obtain figures for deaths resulting from accidents in the home. There were 4,614 deaths from accidents in private houses and 467 from accidents in resident institutions. Of these, 2,951 were due to falls, 389 to poisoning by domestic gas, and 599 to burns and scalds.

Open-Air Schools Castigated.—The recent report of the Chief Medical Officer of the Ministry of Education concludes with a highly critical survey of open-air schools for delicate children, commented on by four medical officers of the Ministry. Some are first class, "but there are others which were merely ramshackle wooden huts, unpleasant to live in and ugly to look at. . . . In one school on a wet, windy day we saw the children lying on damp canvas stretchers in an unheated, open-fronted stone-floored shed, with the rain driving in at the front and leaking through the roof." The beds were often uncared for: "in many schools the canvas covers sagged and touched the floor. Often the covers had not been washed for years. Many [beds] were too short for tall children." Very few schools supplied pillows, and many were without a supply of hot water. The chief criticism of residential schools is that "often they are bare, cheerless and sometimes Spartan. . . . Too often we found the windows of dormitories and classrooms shut. In one school the windows of one classroom had not been opened for a year; they were said to have become stuck after painting." The state of the sickroom was by no means always satisfactory, and one school is mentioned in which at night "the only supervision of ill children was that exercised by the night watchman." In another school the plumbing system had been out of order for four years, and the urinals were flushed by hand twice a week by the caretaker. "In many schools the toilet paper was kept in the classroom, and not on the door of each cubicle. . . . Some schools made no arrangements for the provision and disposal of sanitary towels for the older girls. [Although] one or two schools showed considerable imagination in their choice of clothing, with a wide range of practical, colourful, becoming and individual garments, including windcheaters, jerseys, slacks and dungarees . . . it was common to find, particularly in day schools, the older girls cold and shivering." On the subject of meals it is reported that breakfasts "often consisted only of bread and butter with jam or marmalade, and cocoa and milk. In some residential schools the last meal of the day was at 4:30 or 5 p. m., and even when children went out to play again after this meal, nothing further was given."

In 1907 the first open-air school in this country was opened. As a result of this survey of their origin and development the conclusion is reached that "there is still a place for special schools for delicate children, especially for those who live in industrial areas, but we do not consider that there is justification for much expansion of the existing provisions. . . . There is great need for an objective and critical assessment by school medical offices of the gain to health which a period in these schools, day and residental, gives to children."

Reimpose Ban on Parrots.—In December, 1951, the Ministry of Health raised the ban on the importation of parrots, which had been in force since 1930 as a result of an epidemic of psittacosis, which resulted in around 100 deaths. The ban is now being reimposed on all members of the parrot family including bugerigars species as a result of the discovery of psittacosis in ducklings in two different parts of the country. This announcement follows rapidly on the heels of public agitation on the subject arising from the death, in Birmingham, from psittacosis of the manager of a pets' corner in a department store. The infection in this case was acquired from a consignment of birds imported from Australia. This was the third death from psittacosis in this country since the ban was lifted. Although it is known that a mild form of psittacosis is endemic in certain birds in this country, especially pigeons, this is the first time that the virus has been isolated from domestic poultry. Two major reasons are given by the Ministry of Agriculture for the reimposition of the ban. One is the risk of infection to man if the disease were to become widespread among domestic poultry. The other is that it is now known that birds of the parrot family can be infected with fowl pest, an epidemic of which is giving cause for anxiety in Great Britain, and there has been a case recently of imported parrots infected with fowl pest conveying the infection to domestic poultry, with which they were in contact. Actually, it was in the course of routine examination for suspected fowl pest that the ducklings were found to be harboring the virus of psittacosis.

Cobalt Sixty Beam Therapy Unit.—At a recent meeting in the House of Lords, the Duke of Gloucester, president of the British Empire Cancer Campaign, announced that Canada is presenting Great Britain with a cobalt 60 beam therapy unit. This munificent gift has been made possible by Mr. J. W. McConnell of Montreal, who has provided the cost of the entire unit—something over £25,000. The unit, which is to be on exhibition at the seventh International Congress of Radiology in Copenhagen in July, en route to Great Britain, is to be installed at Mount Vernon Hospital, Northwood, Middlesex. The unit is 200 times more powerful than the radium units in use at present. It is more stable, more reliable, and simpler to control than supervoltage x-ray machines. The cost of a radium unit of comparable activity would be well over 1 million British pounds. The beam of radiation is comparable to that produced by an x-ray machine working at 3 million volts. More than 50% of the dose delivered on the skin is received at a depth of 10 cm. in the tissues.

Traffic in Dangerous Drugs.—Figures for 1951 for the traffic in dangerous drugs in Great Britain have just been published. These show that seizures of opium by the customs fell from 25 in 1950 to 17 in 1951, but seizures of hemps showed an increase and totalled 46. During the year 232 persons were convicted of offenses against the Dangerous Drugs Act: 127 convictions involved hemp and 62 opium. The number of addicts receiving drugs from medical sources were 301, of whom 148 were women. Addiction to manufactured drugs was practically confined to persons over 30 years of age. The majority of hemp users were men of West African or West

Indian origin, aged between 20 and 30 years. Morphine is still the commonest drug of addiction, being used, alone or in combination with other drugs, by 67% of known addicts, while meperidine hydrochloride is used by 18% and heroin by 17%. The figures for meperidine hydrochloride show an increase: in 1950 the figure was 12%.

NORWAY

Cholesterol Studies.—Dr. A. Pihl, who is attached to the Nutrition Research Institute of the University of Oslo, has contributed two studies to the *Scandinavian Journal of Clinical and Laboratory Investigation*, one on the cholesterol content of foods and another on the relationship of cholesterol to atherosclerosis. These studies come as a timely corrective to the tendency, in certain quarters, to oversimplify the problem and to assume that atherosclerosis and diseases of the cardiovascular system are directly proportional to the quantity of cholesterol in the diet. Dr. Pihl has analyzed, by a uniform procedure, the more important foods consumed in Norway; his object was to calculate the amount of cholesterol obtained from different diets. His analysis was confined to foods of animal origin, as vegetables do not contain cholesterol. He found, with two exceptions, the cholesterol content of fish muscle to be comparatively uniform. In most species, the quantity was 60 mg. of cholesterol per 100 gm. of fish. Herring and mackerel contained higher amounts of cholesterol than other species analyzed. The most important source of cholesterol was found to be eggs; one that weighed 60 gm. contained approximately 270 mg. of cholesterol. Milk, on the other hand, contained a comparatively small amount of cholesterol, one liter of milk (650 calories) supplying approximately 135 mg. of cholesterol, while 200 gm. of mackerel (290 calories) contained 160 mg. of cholesterol and 200 gm. of herring (350 calories) contained approximately 180 mg. of cholesterol. Dr. Pihl has determined that animal fat, compared with other animal foods on a caloric basis, is the poorest source of cholesterol; therefore, a high-fat diet is not synonomous with a high-cholesterol diet. If a truly low-cholesterol diet is desired, animal products must be almost excluded. Dr. Pihl does not believe that the decrease in mortality from circulatory diseases in Norway during World War II can be due to the reduced intake of cholesterol. Although fat consumption was reduced during this war, the reduction was partly compensated for by a higher cholesterol content of margarine in which whale oil was replaced by herring oil. The cholesterol content of herring oil is three times that of whale oil. Dr. Pihl concludes that the endogenous regulation of cholesterol metabolism and the level of fat and caloric intake may be a more important factor in vascular diseases than the level of cholesterol consumption.

Psychiatry in a General Hospital.—At the annual meeting of the Norwegian Society for Internal Medicine in November, 1952, the opening lecture was delivered by Dr. Anton Jervell, who is in charge of the medical staff of the Vestfold County Hospital. In this lecture, published in *Tidsskrift for den norske laegeforening*, Jan. 15, 1953, he discussed data from Dr. Jan Horn's study of the frequency of psychic ailments in 500 consecutive patients. On discharge of these patients, the diagnoses were discussed, and the patients' ailments were classified as somatic, psychic, or mixed. Psychic disturbances were diagnosed in 29%; half of these were purely psychic, and the other half were psychosomatic. Genuine psychoses were found in 5% and were equally distributed between the sexes. Neuroses were much commoner in women (32%) than in men (10%). Every third or fourth medical patient presented a psychiatric problem that was apparent to members of the hospital staff. It was agreed by the staff that about 40% of the nervous ailments were not severe enough to be treated by a specialist and should be treated by the hospital physicians. At the same time, it was noted that often the general practitioner or the hospital physician is not capable of treating even mild mental disorders. To correct this situation at the Vestfold County Hospital, a psychiatrist was appointed to its staff. He has been there for more than two years and has achieved satisfactory results. He discusses psychiatric cases with other members of the staff, who, in this way, gain knowledge of psychiatric concepts and procedures. This knowledge is reflected in the case records, which now include more about the psychiatric state of the patients than before. Dr. Jervell has reorganized routine examinations to avoid "horizontal distribution" of staff work, or the patient being examined by one physician after another. Dr. Jervell noticed that a patient's mental level was rarely scrutinized on admission to hospital, so he suggests that "brain function tests" be carried out as systematically as physical and laboratory examinations.

Scandinavian Neurological Congress.—The Scandinavian Neurological Congress was opened in Oslo on Sept. 11 by Prof. Monrad-Krohn, who took this opportunity to plead the cause of decentralization of neurological practice in Norway, where geographical characteristics necessitate such an evolution. At present, there is no neurological hospital north of Bergen. The patient who lives in the far north of Norway is not likely to travel all the way to Oslo before his symptoms become serious enough to betray advanced disease. If early diagnosis is to be assured, stations for neurological diagnosis must be established, and each county hospital should have about 8 or 10 beds for neurological cases. At present there is only one neurosurgical hospital in Norway, and the beds in it have been reduced from 72 to 44. Bergen has at last established a neurological hospital but it still lacks a neurosurgical department. Prof. Monrad-Krohn mentioned the disparity between the recent enormous advances in diagnosis and the poverty of the therapeutic achievements to be derived from them.

Festschrift for Prof. Ragnvald Ingebrigtsen.—On Nov. 30, 1952, Prof. Ragnvald Ingebrigtsen celebrated his 70th birthday, and by the same token he had reached the age limit for his professorship. In 1928, when he was appointed professor of surgery in Oslo, he was also put in charge of the surgical department B, of the Rikshospital. In the latter capacity, he has trained many generations of students, interns, and future surgeons, and he has inculcated in them his doctrine of treating patients as human beings and not just as cases. His special interest in neurosurgery has never diverted his attention from general surgery, the principles of which he has taught his pupils so that they too might develop that exacting fervor he has always demanded of himself. On his 70th birthday, he was presented with a special copy, bound in leather, of a *Festschrift* by his former pupils who had each contributed to the original articles published as one issue of *Acta chirurgica Scandinavica*.

The 25 original articles included in this *Festschrift* are for the most part written by Norwegian surgeons and physicians, but physicians from Denmark, Scotland, and Sweden have also contributed. From Edinburgh, Scotland, Sir James Learmonth sent an article on combined neurovascular lesions in which he discusses the neurological features following injuries of arteries alone and combined injuries of arteries and nerves. He closes his paper with a statement of his "warm appreciation of the privilege of contributing to a volume in honour of a surgeon whose professional eminence is matched by his success as a surgical ambassador in other countries." From the medical staff of the Rikshospital, a paper was contributed by Prof. P. A. Owren on iron deficiency anemia after partial gastrectomy, one by Dr. Gerhard Larsen on pernicious anemia following gastrectomy, and one by Dr. Knut Aas on splenic hemolytic anemia treated by splenectomy. Another former pupil, Dr. Kaare Schanke, contributed an article on gastroduodenal ulceration in old age, a study of 168 patients over the age of 60 who came to autopsy during the period 1940-1950. Dr. Schanke notes that usually considerable atheromatous changes were found in each of these patients. He suggests that gastroduodenal ulceration starting late in life may present etiological and pathogenetic features that distinguish it from other forms of the same disease. Professor Ingebrigtsen's successor, Prof. Leif Efskind, contributed an article on the pathogenesis of portal hypertension; reports of two cases in children illustrate his remarks.

PARIS

Second International Congress on Biochemistry.—This meeting was held July 21-27, 1952, in the lecture halls of the Sorbonne in Paris under the presidency of Dean R. Fabre; Professor Fromageot was president of the executive committee and Professor Courtois was general secretary to the congress. There were 2,400 in attendance, and 50 nations were represented. The biochemical field was divided into 31 specialized sections.

Corticotropin (ACTH) and Cortisone.—J. S. Robson, D. B. Horn, and C. P. Stewart (Edinburgh) reported on the action of cortisone and corticotropin (ACTH) on the dehydroascorbic acid of human plasma. A. Pittoni and C. R. Rossi (Padua) compared the action of corticotropin with that of total prehypophysial alkaline extracts on the metabolism of the ketonic bodies in liver and kidneys. Both actions are similar in the kidneys, but in the liver that of corticotropin is limited to a slight reduction in the production of carbon dioxide. E. J. King, C. V. Harrison, and their associates (London) noted the favorable influence of cortisone on experimental silicosis in the rat. After intratracheal injections of quartz, under the effect of cortisone, the cells with dust are more scattered in the lungs and the formation of siliceous nodules is delayed. B. Kramer, D. D. Casden, M. Goldman, and S. Silverman (New York) observed, in 12 children with lipoidic nephrosis, important chemical modifications in the blood during the course of corticotropin therapy: increase of total proteins with increase of the albuminic fraction, fall of the globulinic fraction, and diminution of total lipids and total cholesterol. H. Weil-Malherbe (Essex) determined, by his own technique, the adrenalin content of venous blood under the influence of various stimuli, such as electrical stimulation of the brain, insulin hypoglycemia, or general anesthesia. C. Lapp (Strasbourg) presented a new technique for the measurement of clearances based on the general kinetic theory of elimination.

Cholesterol.—A problem, which today is the center of general attention, was studied by Plotz (New York), in his work on lipidic metabolism and arterial disease. R. P. Cook, D. C. Edward, and C. Riddell (England) noted that the amounts of cholesterol found in the feces and the serum vary according to the absorption of this substance in the form of crystals or of eggs. The acid fraction of lipids in the feces is increased after absorption of cholesterol; there is an apparent relation between the elimination of cholesterol and the excretion of acids. A. Bodansky (New York), in his study on the free cholesterol of serum and its normal levels, stated that their limits are more restricted than generally admitted. Slightly higher levels (30 to 32%) are observed in cases of functional deficiency of the liver, such as arthritis treated with cortisone or diabetes, without histological modification. R. Kayser and R. Balat (Nancy) believe that abnormal levels in cholesterinuria (a few milligrams per liter) are rare, except in cases when cholesterol is swept along by blood proteins; the presence of cholesterol in urine is to be principally attributed to the mucus of the genitourinary apparatus. Posberg and Petersen (Denmark) studied the relations between plasmatic phospholipids and cholesterol in patients with a long-standing diabetes mellitus.

P. L. Biget (Paris) noted in seven persons, subjected for an hour to anoxemia similar to that experienced at an altitude of 4,000 meters, the absence of oxycarbonemia; there is, therefore, no danger for man of endogenous oxycarbonic poisoning at an altitude already necessitating the wearing of an oxygen mask. A. Palladine (Kiev) reported his investigations on the biochemistry of brain. The disintegration of polysaccharides in cerebral tissues occurs mostly through amylase and maltase, whereas their synthesis is induced by phosphorylase and invertin. The glycogen content of cerebral cortex varies according to the functional condition at the same time as the activity of corresponding ferments, which is contrary to the opinion of an immobility of glycogen. J. P. Dustin, S. Moore, and E. J. Bigwood (Brussels) found that free amide nitrogen, which in adults is less than 1% of the total nitrogen eliminated, appears to exceed 5% in premature or mature newborn infants. They also found that children eliminate certain amino acids (glutanic acid and proline) that adults do not eliminate. B. Glasson (Geneva) pursued investigations on the cholinesterase activity of blood. R. Wolff, Karlin, and Boyer (Nancy) reported their investigations on the presence in the serum of a factor that combines with vitamin B_{12} and the serous and urinary modifications of vitamin B_{12} after oral and intramuscular administration. B. Josephson (Stockholm) reported the results of a study involving 18 tests on 257 normal men and 195 normal women of the chemical changes of blood according to age, sex, and season. In their investigations on the biological and anticoagulative effects of massive intravenous injection of crystallized trypsin, Innerfield, Schwartz, and Abgrist (New York) noted a definite but variable action on experimental thrombus. Of 30 treated patients, several who were suffering from peripheral thrombophlebitis were improved. J. Green, H. E. Pelser, and their associates (Amsterdam), in their work on the action of Glycyrrhiza and some of its components on electrolyte metabolism in Addison's disease, reported that Glycyrrhiza extract, in daily doses of 3 to 20 gm., allowed the preservation of electrolyte balance for periods from two months to two years in four patients with Addison's disease.

Biochemistry and Cancer.—Blood phosphatase was the subject of various investigations, among which were those of O. Daniel, E. J. King, and P. N. Kind (London), who believe that acid phosphatase of the serum consecutive to a palpation of the prostate must suggest a benign hypertrophy but must not be considered as evidence of cancer. E. Vernes and R. Truhaut (Villejuif Cancer Institute) measured the alkaline phosphatasic activity of 300 patients with various neoplastic affections. The comparison between the figures obtained and those found in noncancerous persons show no systematic relation to the presence, the localization, or the evolutive stage of cancer. G. P. Barbieri and A. Bissi (Milan) observed in patients with Hodgkin's disease a sometimes considerable increase of the alkaline phosphatase level, which they explain by an early participation of osseous tissue, whereas radiological observation of the evolutive osseous process is tardier. Bassi (Milan) reported the action of urinary extracts from women with cancer of the uterus on the experimental carcinogenesis in the mouse. In their investigations of 4,817 cases of cancer of the uterus, among which were 523 cases of primitive cancer of endometrium, G. Sirtori and P. Pizzetti (Milan) found only 3 cases in women under 45 years of age. They discussed the importance of ovarian dysfunction (cysts) with regard to uterine tumors (metaplasia and heteroplasia). J. P. Soulier and Barbier (Paris) reported the electrophoretic study of 86 cases of proteinuria. In 17 cases of myeloma, they found 12 cases of an isolated globinuria without albumin, appearing as pathognomonic of myeloma. In 20 cases of nephrosis, they noted three different types of proteinuria; in 16 cases of nephritis there were usually two principal fractions α and γ; in 9 cases of gravidic poisoning results were comparable; and in 7 cases of amyloidosis they noted the inhabitual presence of an α fraction. P. Fredericq (Liège) reported that his investigation on bacteriophage T6 showing that the constituent of the particle of the phage responsible for the bactericide action is an antibiotic agent endowed with the specificity of colicin K. J. Boissier and X. Serafino (Kabul) reported two cases of urinary calculi of pure aragonite (pure calcium carbonate). Their formation may be attributed to a transformation of oxalate into carbonate, as they were found in patients in whom the oxalid food intake is considerable. The next International Congress for Biochemistry will take place in Brussels in 1955.

Rehydration of Infants with Amniotic Fluid.—Professor J. A. Thomas and associates studied the amniotic fluid taken from newly pregnant cows and ewes. It is a stable sterile liquid, naturally in equilibrium, with a pH of 7.7 to 7.8, containing carbonates and mineral salts; it also contains free amino acids, a small amount of urea and 1.75 gm. to 2 gm. of fructose per liter, a level twice as high as that of blood glucose. This liquid is rapidly resorbed through the skin. Professor Turpin and his associates presented to the French Society for Therapeutics and Pharmacodynamics the results of the first trials of rehydration with amniotic fluid in 15 infants. With hyaluronidase as an adjunct, they obtained within 24 hours rehydration that was more permanent than that brought about by the usual venous perfusion. The authors never observed any anaphylactic disorder associated with this procedure.

CORRESPONDENCE

PHENYLBUTAZONE AND WATER RETENTION

To the Editor:—Phenylbutazone has recently been presented to the profession (*J. A. M. A.* **149:**729 [June 21] 1952) and to the public (*Time* **59:**76 [June 16] 1952) as a non-narcotic analgesic substance more potent than the salicylates. Salt and water retention has been noted. My experience with this drug was gained from treating seven patients between Aug. 18, 1952, and Sept. 24, 1952. Each of the seven patients received the maximum recommended dose (200 mg. four times a day) of phenylbutazone for the number of days stated in the table. Each was instructed to restrict the amount of salt used in his food; the patients were not required to adhere to a "very low sodium" diet. I had known each patient for from 1 to 20 years. None of them had significant cardiovascular-renal limitations.

Summary of Treatment with Phenylbutazone in Seven Patients

Case No.	Age	Sex	Diagnosis	No. Days Recommended Dose Given	Effect on Pain	Results of Treatment
1	84	F	Sciatic neuritis on left side	13	Questionable	Ascites, peripheral edema, moderate pulmonary edema
2	67	M	Osteoarthritis and obesity	13	Questionable	Acute, pulmonary edema, severe, almost fatal †
3	77	F	Osteoarthritis	21	Fair	Edema and dyspnea; moderate
4	38	M	Rheumatoid and gouty arthritis (active)	14	Fair	Edema and dyspnea; gained 5 lb.
5	48	F	Osteoarthritis and gouty (?) arthritis	13	Mild	Edema and dyspnea; gained 3 lb.
6	52	F	Rheumatoid arthritis (arrested) plus "psychogenic" rheumatism	14	Questionable	Edema and dyspnea; gained 10 lb.
7	72	M	Gout of 15 yr. duration in acute exacerbation	13*	Good	Acute pulmonary edema and congestive failure, severe, nearly fatal †

* In this patient this period and schedule of treatment were followed by a schedule of 200 mg. of phenylbutazone given three times a day for six days.

† Patient required emergency hospitalization.

Water retention, severe enough to be obvious to the patient himself, developed in all seven within 10 to 20 days. All seven became dyspneic. The patient listed as case 1 had had hepatomegaly and ascites due to "alcoholic" hepatitis 10 years ago and had had no recurrent signs for the past 9 years, yet massive ascites and peripheral edema developed in less than three weeks. Acute, massive, and nearly fatal pulmonary edema and congestive failure, requiring hospitalization and vigorous diuretic management, developed in the patients in cases 2 and 7. The patients in cases 1 and 3 each had less severe pulmonary edema.

The analgesic effect of phenylbutazone in maximal doses was disappointing. It was best in case 7 and fair in cases 3 and 4. In the other four, relief of pain was mild to questionable.

Thus in seven consecutive patients treated over a period of five weeks the analgesic effect of the drug was disappointing, even though it was given in maximal recommended doses. Water retention of obvious degree developed in all seven patients within 10 to 20 days and was of critical importance to life in at least two. This brief experience convinces me that phenylbutazone, except when administered in conjunction with strict electrolyte control, is unsafe for clinical use.

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CANCER DIAGNOSIS

To the Editor:—The Cancer Commission of the California Medical Association is anxious to help in the development of all practical methods that might lead to the earlier diagnosis of cancer. In this it has the cooperation of the parent state medical association and its members; however, various well-meaning representatives of governmental and voluntary agencies periodically recommend detection programs that the commission believes to be unwise or unsound. Further, these proponents frequently imply that a detection procedure is a technical or quasi-lay procedure while diagnosis is admittedly a medical procedure. In order to help clarify this particular end of the problem, the commission recently adopted the following statement of policy on diagnosis and detection.

Diagnosis is the cornerstone of modern clinical medicine. It requires accurate observation and rational deduction. In its most complete form it is the process of identifying a disease by consideration of the history, symptoms, physical signs, and the results of every other type of examination of the patient. It includes differential diagnosis and provides a basis for prognosis. Even in the best of circumstances, it may contain an element of uncertainty, so that diagnosis might be defined as "The procedure of reaching the most probable conclusion based on the facts at hand."

Detection is a step toward diagnosis. It is essentially the effort to discover evidence of disease in persons both asymptomatic and symptomatic. Detection requires accurate observation and rational deduction. The clinician detects and evaluates abnormal physical signs; the pathologist detects and evaluates an abnormality in a cell under the microscope; the radiologist detects and evaluates an abnormal shadow in an x-ray film.

Diagnostic and detection procedures may be performed on an individual basis or on a mass basis. They are performed on an individual basis in everyday clinical office and hospital practice. They are performed on a mass basis in military induction stations, large educational and business establishments, and in certain clinics and institutions.

There are now modern techniques at the disposition of the medical profession by which shortcuts may be made in diagnosis. These include certain serological tests for syphilis, cutaneous tests for tuberculosis, x-ray tests for pulmonary disease, and cytological tests for neoplastic disease. All these tests require the use of various types of laboratory equipment, the cooperation of technicians, and the *interpretation by physicians.* For example, a chest x-ray does not read itself; it requires interpretation by a trained physician; interpretation of a chest film for the purposes of reaching a decision as to whether or not disease appears to be present is a part of diagnosis. That is, a chest x-ray or a vaginal smear for screening or survey purposes *is a diagnostic procedure.*

It is essential for maintenance of quality in medical programs that members of organizations such as the American Cancer Society keep in mind the fact that there is no distinction between diagnosis and detection when the objective of the procedure is the identification of health or disease. Detection procedures are fundamentally medical procedures, which should be performed by or under the direction of physicians, and which require supervision and interpretation by physicians. Confusion has been created in the past by referring to detection methods as nondiagnostic or nonprofessional procedures. Anyone who has seen the distressing results of misinterpretation of chest films and cytological smears is doubly conscious of the need for emphasizing that detection is a part of diagnosis, and not some mechanical or technical process which can safely be relegated to lay persons.

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NEW PLAN FOR CARE OF THE AGED AND INFIRM

To the Editor:—Sir William Osler, during the course of his last public address at Johns Hopkins before leaving for England to accept the chair of medicine at Oxford University, startled the entire country in his discussion of the aged by quoting Trollop's novel, "The Fixed Period," in which, after a year of rest, men of 60 were peacefully disposed of by chloroform. Dr. Osler amplified this subject in his own inimitable, witty style with the result that newspaper headlines the next day read "Osler Recommends Chloroform at Sixty." In looking at our present civilization, one sometimes wonders if the theory of Osler's quoted remark has not been unconsciously accepted. Job applicants of 40 are turned down by business owners of 70; industrial concerns apply age limits for employees; prohibitive taxes make impossible the accumulation of sufficient funds to attain a secure old age; and young executives of 40 discharge older workers at 60. The problem is acute and will become increasingly serious as greater numbers reach the so-called age of retirement. We know the half-hearted attempts to solve this problem: the inadequate social security, the impossible burden of socialized medicine, the charity drives, the state institutions, and the poorhouse.

It is unnecessary to quote facts and statistics concerning the gradually lengthening life span of the average person and the increasingly greater proportion of our population who will shortly be over 65 years of age and subject to all the ills pertaining to old age. This natural increase in number will inevitably make additional facilities necessary to take care of the senile and aged. The inability of our present system of nursing homes to provide recreation, outside contacts, mental occupation, or even the passive enjoyment of the great out of doors has not been amplified. In many cases, the entire later portion of a patient's life is spent either in bed or within a few feet of it, hopelessly awaiting the end that may be delayed for a period of years. This picture presents no discredit to many of our present nursing homes. Patients are kept clean and fed, and it is no fault of the individual nursing homes if they are unable to do more. Increasing care and attention is being devoted by the medical profession to diseases of old age and to their prevention and treatment. Perhaps the time has come when economic attention should be given to the many problems involved.

It appears strange that certain phases of the problem have never been approached from a business-like, practical viewpoint. The following suggestions are made with diffidence and with a full knowledge of the immensity of the problem, the difficulties involved, and the innumerable complications that will have to be solved. As a beginning, I believe that all must recognize the following factors: first, the need for proper care of the aged, the helpless, and the hopeless or, in other words, the inability of many aged persons to take care of themselves under present existing conditions. Second, we must recognize the impossible burden, resulting from economic difficulties, placed on many families and children to properly care for their parents, much as they are loved and respected or, to state it differently, the increasing seriousness of the situation and the injustice to the self-respecting aged persons who, through no fault of their own, find themselves objects of charity and pity. The objective to be attained in whole or in part is to give better care to aged and helpless persons, to reduce the burden on responsible families and children for the care of their parents, to make the last years of life more comfortable, satisfying, and pleasant, and to do these two things on as nearly a self-supporting basis as possible without total dependence on charity, philanthropy, or taxation. The following suggestions are not presented as a complete or perfect solution, but it is hoped that the germ of the idea may be found practical and workable and that somehow a trial may be made so that, if found successful, a plan may be developed and perfected until, after a period of time, it may become widespread.

We all know that at the present time millions of dollars are being spent for the development and erection of tourist motor courts. Some of these are superb, and all are built on the gambling assumption that they will be patronized by a sufficient number of overnight guests to pay for their construction and to render a handsome profit in addition. Capital for such a venture is comparatively easy to obtain. How much greater would be the possibilities of courts—we will leave the name motor out—developed and used exclusively as nursing homes or nursing courts. Courts are specified and considered because their architecture appears to fit perfectly the needs of aged, infirm persons and invalids. They are on one floor easy of access and reasonable in upkeep, their construction is comparatively simple, and their cost is reasonable. The reduction of fire hazards, a most important consideration, is achieved. Wide doorways facilitate egress of wheelchairs to sunlight, air, and gardens, pleasures seldom enjoyed by the present nursing home patient. One floor construction makes nursing care easier and more efficient and, at the same time, contributes to a more home-like atmosphere. Such courts properly placed in the country would benefit from all the advantages of the country, escape the perhaps excessive taxes that so frequently apply to city and town property, and be easy of access in uncrowded and pleasant surroundings.

A nursing home constructed on the court idea and specifically adapted to that purpose could be expected to be fully occupied by the time construction was completed, and the gamble as it pertains to motor courts could be eliminated. This conclusion is based on my experience in contacting 22 nearby nursing homes all filled to capacity and many with waiting lists. A properly and efficiently managed nursing court could again be expected to return a good profit plus interest on the capital invested; such is the experience of present nursing homes. By reason of its additional comfort, its attractive appearance, and its extra facilities offered to patients, such a nursing court would undoubtedly be popular, accommodations would be in considerable demand, and these courts would more nearly meet the needs involved. My suggestions should in no way be taken as a criticism of the many private nursing homes now in existence. They are doing their utmost to solve a difficult problem, and they deserve all credit possible for trying to fill a dire need.

My suggestion is that nursing homes be built on the court principle and that the profits from each be expended on the extension and building of similar homes throughout the country. Thus a chain reaction might be started, the greater the number of courts, the greater the number that might be built until, as a visionary ideal, the entire country has available sufficient modern, comfortable nursing homes to satisfy the increasing demand.

The second objective is to reduce costs incurred in caring for aged persons. It is necessary to accomplish one thing at a time. The plowing back of profits to be used for the erection of additional nursing courts may be expected in due course of time to produce a sufficient number to satisfy the acute needs. This point being reached the profits from each nursing court might be used to reduce or lower the rates for individual patients until such costs were within the means of those who need it most. We all know the good that Carnegie brought about through his libraries and the wonderful work of the Rockefeller Foundation, the Ford Foundation, and other philanthropic institutions. Most of these projects required the expenditure of huge amounts of capital; most are not self-supporting. These projects, although perhaps not their benefits, are limited to the original location. This court plan of nursing homes might first of all be economically profitable and return legitimate interest on the capital invested, with the original capital protected by mortgage. In addition, the project could be self-supporting, self-perpetuating, and capable of extension by means of the profits throughout the length and breadth of the land, with a reduction in cost for each patient later. What finer memorial to loved parents, what better philanthropic purpose, or what better business investment could be made than a lasting contribution to the care, the protection, the

betterment, and the comfort of the aged, helpless, and hopeless members of our society, especially if such an investment could be protected as to capital and could provide a satisfactory return in the form of interest on the money invested. It would appear that there is much to gain and little to lose.

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SURGERY AND MEDICAL MORALITY

To the Editor:—The article "Advising Radical Surgery: A Problem in Medical Morality" by Father Ford and Dr. Drew (*J. A. M. A.* **151:**711 [Feb. 28] 1953), obviously intended as a discussion rather than as a norm, contains statements and implications that add fuel to the controversy. The concepts of what is radical surgery, what are its dangers, and what is its usefulness have changed with the passing of time. The moral problems of presenting to the patient the facts concerning his condition and of helping him make the right decision remain the same today as they did yesterday. What is new is the mixing of pragmatic considerations with the already difficult medical and moral responsibility of deciding what is right. When a physician begins to consider the "social value" of his patient's life as not justifying the use of "extraordinary means" of preservation and when he proceeds to define these means as those not obtainable "without excessive expense," he has already started on the road to euthanasia.

Are we to deny treatment to all babies with familial retinoblastoma of the eye because, if cured, they are almost certain to have children for whom other physicians will have to make the agonizing, but nevertheless clear, choice between blindness and death? To advise a pelvic exenteration to a patient with carcinoma of the cervix who has an equal or better chance of recovery by means of radiotherapy implies either ignorance or ruthlessness; but there can be no scruples in offering the same operation to a patient who has failed to recover after adequate or inadequate irradiation or who has no other means for possible cure. In my opinion, the physician's position is not that of recommending the sporting risk of going "on the raft Kon-Tiki where life and death are at stake," but of offering a raft to a drowning brother so that he may avoid sure death. Let the physician charitably plead with his brother and find reasons for the acceptance of all possible privations in exchange for the remote chance of reaching safety. If his brother is to drown by his own refusal of the raft or to starve without ever reaching the hoped-for land, let the physician sleep with the clear conscience of those who have done their duty.

In our pragmatic society, relatives of patients may not be "able to afford" medical treatment, the cost of which may amount to only a fraction of their liquor bill. Patients themselves may be inclined to gamble with death and to save money at the expense of their lives. Many indeed fear mutilation or dysfunction and the consequent social restrictions more than they fear death. The physician does not help actual suicide because of a patient's economic or spiritual inability to face misfortune nor does he practice euthanasia, by indifference or abstention, in order to make it easy on someone else's or his own (taxpayer's or philanthropist's) pocketbook. Let him remain, to the last breath and ultimate hope, his brother's keeper.

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LUDVIG HEKTOEN

To the Editor:—I am preparing a detailed study of the life of Dr. Ludvig Hektoen and through readers of THE JOURNAL would like to borrow any letters that he may have sent them.

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POLIOMYELITIS AND FRUIT FLIES

To the Editor:—For some time an insect has been suspected of being a carrier of the virus of poliomyelitis. The common house fly was at first suspected, and experiments seemed to strengthen this theory. Mosquitoes have also been suspect. These insects, of late, have been almost excluded as possible carriers for various reasons, chief of these being that explosive epidemics of poliomyelitis have occurred at seasons of the year when both house flies and mosquitoes were absent.

In 1948, on a call to see a patient with poliomyelitis during the month of August, I observed a basket of fruit on the dining room table and saw that there were many drosophilas, or fruit flies, present in the room. I made several calls during the next few months at this house after the return of the patient from the hospital. Even after the weather had become cold, in late October, there were many fruit flies in the bathroom.

Since this experience I have made a careful inquiry as to the presence or absence of fruit flies at homes where poliomyelitis was found. In every case, with but a single exception, the presence of drosophilas was noted. It was also observed that when cooler weather arrived most of the flies were found in the bathrooms. The drosophilas are geographically widespread, small enough to pass through screens, extremely hard to kill, will live when no food is seen to be present, will fly directly into a food dish, and multiply so rapidly that they have been used in the study of hereditary characteristics in many universities. With these characteristics, especially the fact that it tends to migrate in the house between the kitchen, toilet, and dining room and the fact that poliomyelitis virus can be found almost invariably in stools of patients, convalescents, and carriers is a strong indication of the possibility that fruit fly is the carrier of the virus. In many of our large fruit producing states, such as Texas, Michigan, and California, fruit is picked by migratory groups of workers who usually observe the very poorest sanitary standards. Some of our most explosive epidemics have occurred in these states.

It is my opinion that more studies should be done on the possibility that Drosophila is the carrier of poliomyelitis virus and, secondly, that all fruit brought into a home, especially that shipped from known poliomyelitis areas, should be so treated that not only the fruit fly itself but also the eggs are entirely destroyed.

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GAMMA GLOBULIN AND INFECTIOUS MONONUCLEOSIS

To the Editor:—The opportunity for an active physician to treat any considerable number of patients with infectious mononucleosis is obviously limited. Even as an attending physician on the staff of a large municipal hospital I observe only a few cases a year. One of my patients, a girl of 17, with infectious mononucleosis, ran a temperature of over 104 F for more than a week that failed to respond to the usual antipyretics. Immune globulin, 4 cc., was given. There was a prompt fall in temperature within 24 hours. I have not had the opportunity to repeat this observation. I offer the preceding observation in the hope that it may be of value to others in a similar situation. The purpose of using immune globulin was not primarily to favorably affect the illness directly, although such an event was hoped for, but to prevent if possible the development of a complicating hepatitis, which has been observed occasionally in the severer types of infectious mononucleosis.

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In his recent book on infectious mononucleosis, Leibowitz says that in 1949 Bower, Afjeldt, and West described in the Journal of Pediatrics, *July, 1949, the favorable effects of combined gamma globulin (one dose of 4 to 8 cc.) and penicillin administered intramuscularly in 14 cases of the anginose type. They ascribed greater beneficial effects to the gamma globulin than to the penicillin.*—ED.

COMMITTEE ON MEDICAL MOTION PICTURES

The Committee on Medical Motion Pictures has authorized publication of the following article.

RALPH P. CREER, *Secretary.*

TELEVISION AT THE UNIVERSITY OF KANSAS MEDICAL CENTER

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The evaluation of television in medical education at the University of Kansas School of Medicine is the direct result of a recommendation by the Kansas Board of Regents to the state legislature that the 1949-1951 biennial appropriation for the eleemosynary institutions of Kansas include funds for this purpose. As one of a series of progressive actions in the field of education the Kansas legislature in 1949 authorized this expenditure.

The administration of the school charged the department of surgery with the responsibility of implementing this program. Several members of our faculty saw the Smith, Kline, & French Laboratories color television demonstrations at the A. M. A. Annual Session in Atlantic City that summer. Naturally it was our hope to procure equipment similar to that used in this program; however, as we canvassed the few suppliers of television equipment in 1949 it became obvious that only monochrome systems were available. Indeed none of the existing systems met our requirements, and it was only through the cooperation of Remington Rand Inc. and the Wilmot Castle Co. that monochrome equipment suitable for routine use in surgery was developed.

Thus, on Sept. 19, 1949, a single camera chain of Remington Rand Inc. vericon® television was installed in one of the operating rooms at the University of Kansas Medical Center (fig. 1). Since this camera employed an orthicon tube it could be mounted vertically above the operative field with its optical system aligned directly in the axis of a specially designed Wilmot Castle major operating light. Incidentally, in the light of our subsequent experience, it still appears that this is the best location for an operating room television camera, particularly since remote positioning controls are now available. The vericon® camera carried a two lens turret, which could be rotated remotely from a control area that was established in the gallery. Remote optical focusing was accomplished through a motor drive attached to the flexible orthicon mounting. The master monitor and pulse waveform generator were located in the gallery control area from whence the program audio and video signals together with intercommunication audio were distributed over proper conductors to an auditorium in the basement of an adjoining building. Here was located a monochrome projection system that displayed an image as large as 6 by 8 ft. Actually our first televised operation was shown to a mixed lay and professional audience, and the horrifying proportions of the initial incision, as might have been expected, elicited several shocked responses.

Basic to all of our planning in reference to television has been a large concern about the possibility of our equipment becoming obsolete and unadaptable as technological advances occur in the electronics field generally. Therefore, one of our first and continuing requirements has been an insistence that all of our equipment be basically designed to produce a standard Radio Manufacturers Association (RMA) monochrome television signal. This position obviously reflects our hope that most significant developments in both monochrome and color transmission will be compatible with or adaptable to equipment now designed for commercial monochrome use. Thus, though the Remington Rand vericon® chain, with which our work began, utilized a signal consisting of 350 sequential scanning lines per frame, with a frame and field frequency of 60 and a line frequency of 17,500 per second, the system was also designed to operate with our DuMont synchronizing pulse generator, which delivers a standard RMA signal consisting of 525 scanning lines per frame, interlaced two to one in successive fields, with a frame frequency of 30, a field frequency of 60, and a line frequency of 15,750 per second.

Since new building planning and construction at the Kansas Medical Center was under way at the time of our vericon® installation in 1949, we were also concerned about the matter of providing adequate conduits for the closed circuit distribution of both video and audio signals as well as for the complex pulses that pass between the camera and the master control monitor. Equally important in this connection were the actual space requirements of our projected planning as well as the physical relation of control room to camera locations. Our thinking in this general area has changed several times since 1949, and our present concept is outlined in figure 2 and will be elaborated in detail later in this presentation.

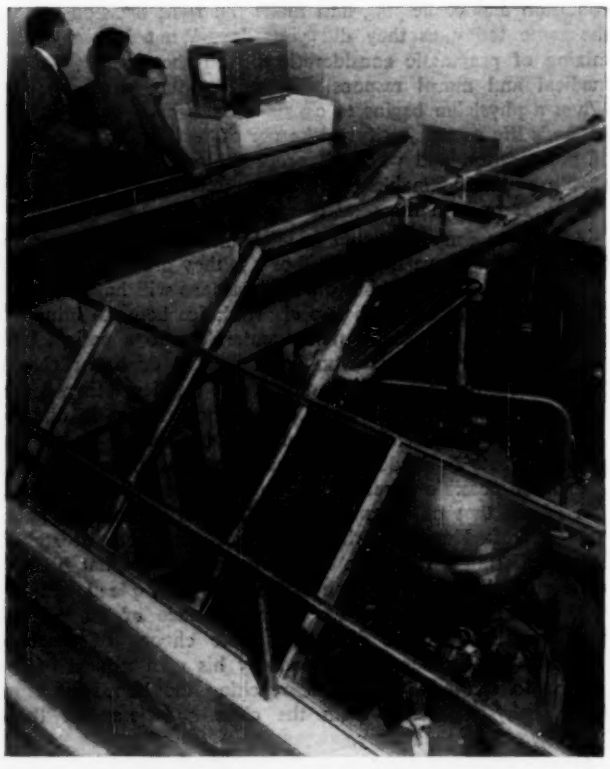

Fig. 1.—Original 1949 monochrome installation with camera mounted vertically in the operating light. The master camera monitor was located at the gallery level.

For approximately a year prior to the 1949 vericon® installation the surgery faculty had been seriously considering the possible applications of television in the surgery curriculum. We were of the unanimous opinion that television, like other audiovisual aids, had to be integrated into our present instructional program. We did not wish to abandon a fundamentally sound curriculum in favor of the many unique and novel advantages of an untried teaching method. Furthermore, we still regard our efforts as an experiment to determine just how this tremendously valuable teaching aid may be best employed. For these reasons television was originally used only in the instruction of third year medical students assigned to the department of surgery, these constituting one-fourth of the entire class, or about 25 students each of the four quarters of the academic year. Our original programs were 50 minutes in duration and were scheduled once daily, Monday through Friday, beginning at 8 a. m. In the main, subjects covered related to the identification and use of surgical instruments and "how-to-do" demonstrations of minor surgical procedures, though even in the beginning we attempted to demonstrate such subjects as regional anatomy, gross pathological conditions in

Professor and Chairman of Department of Surgery, University of Kansas School of Medicine.

situ, and normal and abnormal physiology. This general plan was followed through the remainder of the academic year of 1949-1950 and well into 1950-1951. Faculty and student reaction to this regular routine left little doubt that television had a proper and important place in the medical school curriculum, at least at the University of Kansas School of Medicine (fig. 3). However, as the months passed by it became increasingly apparent to all that monochrome television presented such sharp limitations that it would have to yield in favor of color at the earliest possible moment if full advantage were to be gained from this exciting audiovisual technique.

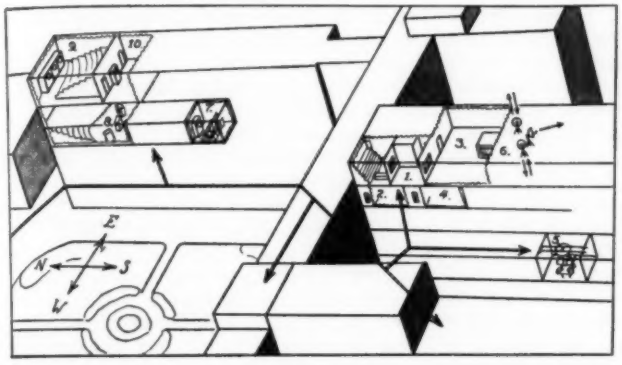

Fig. 2.—Semidiagrammatic representation of our present and proposed installation. The control room (1) overlooks our present surgery installation (2) and the proposed studio (3). Other cameras may be obtained later for use in another operating room (4) and in the delivery area (5). Plans are now under way for microwave linkage (6) with the parent university at Lawrence, Kan., and with two affiliated hospitals in the city. Present reception areas comprise: a classroom (7), two auditoriums (8 and 9), and a display lobby (10), all located in a building adjoining the surgical unit; however, cable provisions (heavy lines) allow for the later distribution of signal to almost all buildings.

Since our original purchase arrangement committed the Remington Rand Inc. organization to the replacement of our vericon® system with a color camera chain under certain provisions, all of which seemed to apply at the time, the decision was made to commit the funds necessary for this conversion and Remington Rand was advised accordingly. After negotiations, which extended through late 1950 and early 1951, Remington Rand and the Columbia Broadcasting System entered into an agreement to produce and sell a color television system like that used in the Smith, Kline, & French Laboratories demonstrations. Parenthetically, it should be noted that this Remington Rand-CBS association is now terminated and has been replaced by an arrangement between CBS and the Wilmot Castle Co. This equipment was given the name vericolor® and employed the CBS color principle, then declared as the United States color standard by the Federal Communications Commission. The signal employed by this system consisted of 405 scanning lines per frame, interlaced two to one in successive fields of the same color, with a frame frequency of 72, a field frequency of 144, the color frame frequency of 24, the color field frequency 48, and the line frequency 29,160 per second.

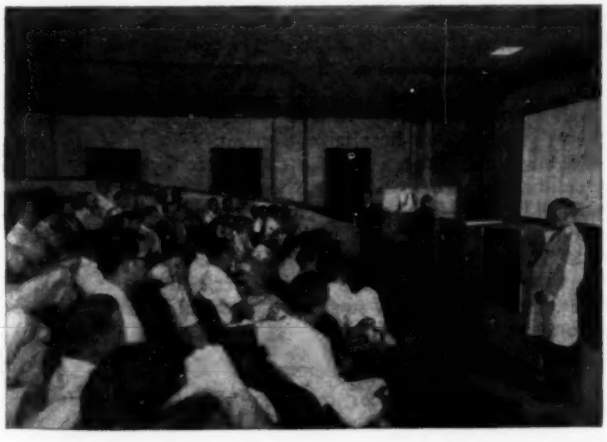

Fig. 3.—Three direct view console receivers are being employed in this classroom scene. Note provision for use of other visual aids by the two instructors of this class. The receiver technician is adjusting one of the sets.

The first permanent installation of a Remington Rand-CBS vericolor® camera chain was finally made at the University of Kansas Medical Center on Nov. 29, 1951, and has since been in regular daily use except for a period early in 1952 when this system was being adapted for dual purpose use with both standard color and standard monochrome signals. Though color conversion presented many immediate academic advantages, it also quickly posed various technical problems, many of which are still unsolved. It was fortunate indeed that our prior experience with monochrome television had allowed our engineering, maintenance, and operations personnel to become familiar with some aspects of the new work. One major difference between the two systems is that the vericolor® camera utilizes the highly sensitive image orthicon tube, which cannot be mounted vertically and cannot be left stationary on a brightly illuminated scene for more than a few seconds without resultant irreparable damage, this to be avoided when a replacement tube costs $1,200. Fortunately the Wilmot Castle Co. staff was able to design a light that allows horizontal mounting of the camera, and the CBS engineers developed a motor-driven tilt-pan mechanism that allows the camera to be positioned from a remote location (fig. 4). Most of our many technical maintenance and operational difficulties relate to the basic observation that this television system is a highly complicated electronic apparatus. Also our technical staff was unfamiliar with the new equipment. In the light of our experience it seems sound to recommend that adequate planning for a competent engineering and technical staff precede the actual purchase of equipment. Indeed, such personnel should have substantial previous television experience and familiarity with the operation of the image orthicon tube. In addition, they should have definite preinstallation training with the exact equipment they are to operate and maintain.

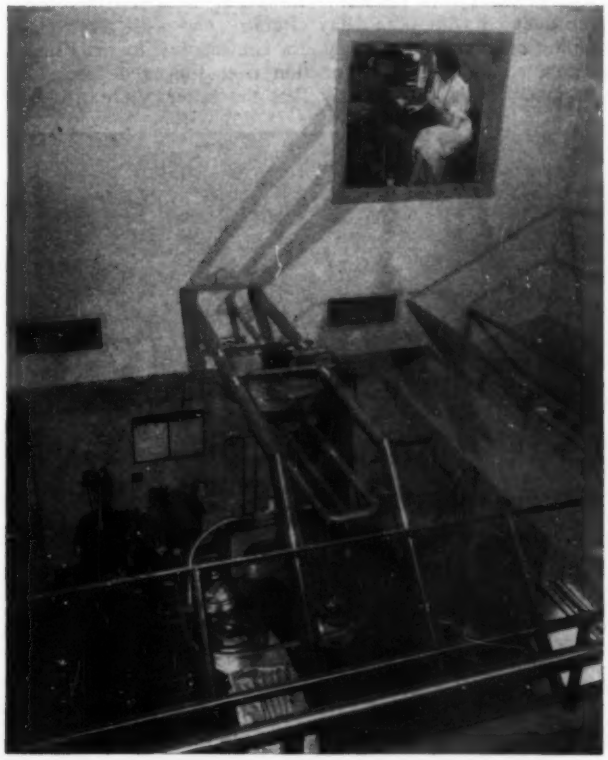

Fig. 4.—Present installation as viewed from the gallery showing the television camera and its tilt-pan mounting attached to the yoke of a special operating light. Both the monitor technician and the program director have a clear view of the surgery area through a large window in the north wall of the control room.

PHYSICAL PLANT

One important consideration in new building construction is the observation that a television camera for use in surgery can be mounted in a room with sufficient ceiling height to accommodate any major operating room light. This, coupled with the fact that the television camera allows a high quality view of the operative field unsurpassed by any viewing gallery, suggests that few new hospitals will be constructed with such costly operating amphitheaters. Provision must also be made for an adequate control room, which ideally should measure not less than 8 by 12 ft. and would need to be larger if more than two cameras are to be used. This control room should be located as near to the center of all camera locations as is possible, since major problems arise when any considerable distance exists between the camera and the master control monitor. The standard vericolor® camera and master monitor should not be separated by more than 35 ft. For distances greater than this two alternatives are possible. Either the master monitor can be retained within the camera area and the signal then be fed to a preview monitor in the control room or the system will have to be adapted with time-delay circuitry and with removal of scanning circuits from the camera control unit to the camera location, so as to permit function over longer distances. In most instances it seems likely that the latter alternative will

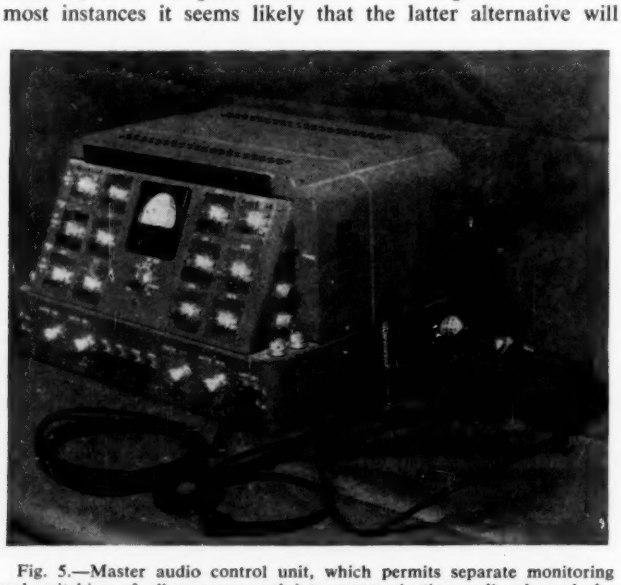

Fig. 5.—Master audio control unit, which permits separate monitoring and switching of all program and intercommunication audio channels by the program director, whose headset and microphone are shown.

be elected, since it seems administratively unsound to duplicate technical personnel, and this is of course implied when a master monitor must be operated outside the control room area.

In a standard installation of a single vericolor® camera less than 35 ft. from the control area conduit provisions must be adequate to handle one camera cable, one panning head cable, and audio conductors. Unfortunately a flexible camera cable of the type necessary for use with the vericolor® system has not yet been manufactured. The standard monochrome camera cable contains 24 conductors, 3 of which are coaxial, while the vericolor® system requires 32 conductors, 4 of which must be coaxial. Therefore, we have employed a standard flexible monochrome camera cable and have added to it a smaller cable containing the additional conductors. The standard monochrome cable measures slightly less than 1 in. in diameter and the additional camera cable is ½ in. in diameter. If the installation involves distances greater than 35 ft. between the camera and the master monitor with separation of the scanning circuits from the monitor, essentially the same cable requirements will exist between the camera and the auxiliary scanning unit from whence a standard monochrome camera cable can be run to the control room.

The cable for the tilt-pan head contains six wires and is ⅜ in. in diameter. The three pairs of shielded audio conductors together present a diameter of ¾ in. In addition, spare audio leads offer many advantages. For instance in our audio system we propose to use them for connection to an antenna or loop to make possible radio or induction linkage to the surgeon's microphone.

Correct estimation of conduit sizes will involve the distance to be covered, the number of junction boxes, amount of angulation, and other obvious factors; however, in view of changes that are likely to be made after an initial installation it is strongly recommended that at least a 50% overcalculation be employed for such contingencies. When practicable, conduits containing shorter lengths of camera cable should be large enough to accommodate the camera plug, which measures 2⅞ in. in diameter.

Closed circuit distribution of the video signal from the control room to viewing monitors in classrooms, auditoriums, and so forth poses less of a conduit problem, since only one RG-59/U coaxial cable is needed; however, if all slave monitors or viewers are not aligned in series on this conductor a major problem is encountered. For parallel transmission of video signals a distribution amplifier must be interposed between the video distribution system and the master monitor, and then all parallel lines must originate directly from this amplifier. This does, however, present the advantage that in a multicamera installation, with proper mixer-switcher equipment, simultaneous transmission of different programs to different distribution areas is allowed. The program and intercommunication audio provisions of the standard vericolor® system are probably adequate for simple, single camera installations; however, multiple camera planning and flexible single camera arrangements will usually require a separate audio system. Even with a single camera our needs were such as to require the design and construction of the audio mixer-monitor-switcher shown in figure 5. We parallel all video distribution lines with four shielded pairs for audio. Thus, at least a 1 in. conduit is required for video and audio distribution from the control room to reception areas. Since all conductors are shielded and no high voltages are present on these lines, we have in some protected areas installed these leads without provision for conduit. This has been especially helpful when our distribution has traversed old buildings that would have been costly to equip with conduit in all areas.

Power requirements for the vericolor® system are 208-117 volt—3 phase—4 wire with provision for a maximum load of 2.35 kw. at the motor generator and regulated power supply set, which incidentally can be located up to 1,000 ft. from the control room. It is strongly recommended, however, that this part of the equipment be as close to the control area as possible to make practicable its easy survey in the event of equipment failure. A generous number of 117 volt 60 cycle AC outlets should be available in the control room and at each receiver location, and these outlets should be wired directly enough to preclude sharp voltage drops caused by the intermittent load by other hospital equipment.

We have encountered considerable difficulty with ground current interference in the video signal at receiver locations, which will probably be a problem common to all hospital installations. Our solution has been to prevent grounding of the RG-59/U shields in conduits, the ground return being obtained by connecting the shields only to receiver and master monitor chassis. Other techniques such as the use of a balanced line distribution may be employed.

PERSONNEL

Like many of the ideas expressed in this article our views on minimum personnel requirements for satisfactory operation are by no means rigid. At present we feel that technical personnel should have substantial prior experience and/or training in commercial television. In addition, we are inclined to the view that all best interests would be served if the suppliers of color television equipment, whoever they may be, would organize and conduct an adequate school for instruction in the use of this unique equipment and that certain responsible members of the technical staff should receive such instruction before attempting maintenance and operation work. It is our hope that this article will correct the mistaken impression encountered from time to time that a color television system for use in medical schools is a more or less automatic device possible of push-button operation by untrained personnel.

At present we believe that good programming, if possible with a single camera chain, requires the technical services of at least four persons: one electronics engineer, two electronics technicians, and one program director. The basis for this opinion is here presented in some detail: 1. The electronics engineer: About this person we believe there would be complete agreement. The day-to-day problems that arise are often more complicated than can be resolved by a technician, at least until such time as he has gained very considerable experience. Earlier we thought it possible to manage with the part-time services of an engineer; however, we have successively become committed for first one-fourth of his time, then one-half, and now, three-fourths, with the expectation that he will have to become full-time with the addition of the second camera chain to our operation. Obviously, our former idea that a consultant engineer could do an adequate job has been completely changed. 2. The electronics technicians: One technician is obviously required to operate the master camera control, the tilt-pan control, and the audio monitor-mixer-switcher. For the first year of our color television experience we had to get along with one such person; however, the practical problems relating to receiver location and operation are such as to have required us recently to add another technician to our staff. We now have six receivers, five of which we assembled and modified from parts obtained from a discontinued production line for home color television receivers. These receivers are used in varying combinations in five separate locations, some of which must be used for other than television purposes: two auditoriums, one classroom, one display lobby, and one conference room (fig. 2). The physical problem of getting the proper number of receivers in the correct location in time for a given class, meeting, or conference, is in itself a time-consuming operation. Then the receivers must be attached to the coaxial video loop, which must be closed at all points and properly terminated. Similarly, the audio distribution must be established. Then the receivers in use for the given program must be adjusted and both the program video and audio signals monitored and adjusted during the course of the class itself, all this under intercommunication audio coordination with the program director in the control room. Technician requirements with the addition of the second camera chain to our system, and this chain we believe should be a flexible studio unit, are not at all clear at present; however, it seems likely that we may have to double our present technician staff with this first enlargement of our project. 3. The program director: It is not within the scope of this article to elaborate in any detail the concept that relates to this position. This matter is treated in proper fashion in a forthcoming report.[1] Suffice it to say that the need for such a person is just as real in a good academic television presentation as it is in a commercial show. Unimaginative programming that does not envisage requirements in this area is certain to fail in its purpose. Fortunately, we have now secured the excellent services of such a person, and in the short time she has been with us the quality of our presentations has been greatly improved.

BUDGET

Preparation of this part of the report has been particularly difficult, since the color television market place has been in a state of flux. At the time of our capital outlay the only color television system available for operating room use was vericolor,® which, as has been indicated, is CBS color as produced and sold by Remington Rand Inc. It is our present understanding that a near monopoly still exists in this field, from which Remington Rand Inc. has withdrawn, their role in sales and distribution now being assumed by the Wilmot Castle Co. of Rochester, N. Y., with CBS responsible for design and manufacture. However, during the past year, we have been able to obtain quotations for certain color television equipment from the Allen D. Cardwell Manufacturing Corporation of Stamford, Conn., and from General Precision Laboratory, Inc., of Pleasantville, N. Y., and presumably other manufacturers would be encouraged to compete if the potential market for such equipment were to become real.

We have elected to consider budget under three headings: permanent equipment, personnel, and supplies.

1. Schafer, P.: The Kansas Television Experiment, to be published.

A. Permanent Equipment

1. Operations

a. A single color television camera chain of industrial type similar to the vericolor® unit we are now using consists of a camera, a camera control unit, and power supply, costing approximately $27,000; a remotely controlled tilt-pan unit, costing $3,000 to $4,000; and a major operating light, costing from $2,000 to $2,500.

b. A single color television camera chain of studio type consists of a camera, a camera control unit, and power supply, costing from $30,000 to $40,000.

c. Accessory equipment required for multicamera installations will vary directly with the complexity of the program schedule. Budget provisions in this area should be in the price range of $10,000 to $30,000.

d. Receivers

(1) Console type direct view color receiver with a 10 in. picture tube and magnifying lens costs approximately $1,500. Audio provisions may increase the cost of each receiver by as much as $500.

(2) Larger direct view color receivers with 17 in. picture tubes do not require the use of a magnifying lens; they cost $3,000.

(3) Small screen color projection receivers can be obtained, but unit costs are apt to be excessively high until such time as production has become established. No price quotation is available at present.

(4) Large theater or auditorium size color projectors will probably be available soon. The eidophor® system developed at the University of Zurich is being manufactured in this country, but cost estimates are not yet available.

e. Color kinescope recorder

A good monochrome kinescope-recorder costs approximately $20,000, about half of which represents the cost of the camera. A good color converted unit should probably cost $25,000 to $30,000.

2. Maintenance

a. Syncroscope with flat frequency response to at least 5 mc. (such as Tectronics—514D) costs $950.

b. Signal generator with a frequency range from 10 cycles to 10 mc. (such as Hewlett-Packard—650A) costs $475.

c. Video sweep generator, 100 kc. to 15 mc. (such as RCA—WR59B) costs $275.

d. Tube tester, such as Hickock—539, costs $255.

e. Volt ohm milliammeter, such as RCA—WV97A, costs $70.

3. Transmission

a. Microwave transmitters and receivers designed to handle a 10 mc. video band width are not available. Monochrome systems now in widespread use have a band width of substantially less than this and when adapted for wider band operation will probably cost $25,000.

This estimation is exclusive of installation, which could be substantial if terrain factors force high elevation of the equipment. For bidirectional transmission the above quotation would have to be doubled.

b. Cable and conduit costs for wired closed circuit distribution of signal can only be calculated in the light of each specific installation. Material for use in such a system has been identified in this article and can be obtained at regular catalog listings.

B. Personnel

Costs referable to this area of the budget are variable over a wide range:

1. Electronics engineer, $6,000 to $12,000 per year.
2. Program director, $6,000 to $12,000 per year
3. Electronics technician, $2,400 to $4,800 per year.

We believe that two technicians will be needed in all but the simplest program schedules.

C. Supplies (an approximate annual budget based on our experience during 1952. It obviously will vary widely depending on the actual use of the equipment.)

1. Image orthicon, $1,200 each (at least 2 per year)
2. Small vacuum tubes, $300
3. Electronic components, $250
4. Receiver kinescopes, $50 each (at least 1 per year per receiver)
5. Receiver components (at least $50 per year per receiver)
6. Audio components, $200

PLANS FOR THE FUTURE

We propose to describe briefly our present physical layout, and though our planning for the future undoubtedly will undergo many modifications we shall also present it with the thought that it may be helpful to others. As shown in figure 2 we have a single vericolor® camera, which is permanently mounted in an operating room on the fifth floor of the surgical unit. Our central control room has been located on the sixth floor level of this same building overlooking the surgery area from the south (fig. 4). The motor generator and regulated power supply set are housed in a utility room adjacent to the control room. Immediately adjoining the control room to the south, in a new hospital unit now near completion, we have made provision for the establishment of a studio and program direction area. Large plate glass windows in the north and south walls of the control room will allow easy visibility into the surgery and studio areas. We plan that our next large capital investment will be directed towards procurement of a flexible studio type color television camera chain, which will for the first time allow programming in the other clinical and basic medical sciences, in almost all of which the use of television will afford advantages that have now been largely restricted to the surgery area of the curriculum. As one example, it now appears that the television camera is an ideal "one way window" for psychiatric instruction. Indeed, our present thinking suggests that planning by others might best be directed toward the initial installation of a two camera chain, or, in the event that only one camera can be obtained initially, that it should be of the studio type rather than one restricted for use in an operating room. Further into the future we envisage the ultimate location of cameras in the delivery room and morgue areas; and, if costs should become substantially lowered, an ideal arrangement would provide for a second camera in both the studio area and in another operating room.

Television affords unique opportunities for coordination of the curriculum in affiliated hospitals. Our planning for the immediate future includes a one way microwave transmission of our programs from the medical center to a private hospital, three miles away, in which we have an active undergraduate teaching program. Also it appears that the Kansas City VA Hospital, opened last year, may be connected by a two way microwave link to the medical center. In this hospital, located 10 miles cross town, we now have both undergraduate and residency programs. Furthermore, it is possible that this VA Hospital may be equipped with its own two camera chain as outlined above. Lastly, it is proposed that a VHF broadcasting station be established at the parent university located at Lawrence, Kan., 40 miles away. Basic plans for this installation include a two way microwave linkage with the Kansas City campus, both for closed circuit and for lay and professional educational broadcast transmissions. Incidentally, the Lawrence station is also to be microwave-linked to a similar station now being planned for construction at Kansas State College located at Manhattan, Kan., 70 miles to the west.

In conclusion we wish to state that our efforts should be regarded as an investigation to ascertain the correct role of television in medical education. At this early date no one could justify such expenditures as are involved in even the simplest, single camera installation on any basis even remotely resembling a cost-product relationship. We feel, however, that ultimately this spectacular addition to the armamentarium of the academician will stand such critical scrutiny.

5720 Foster Rd. (3).

BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Medical Practice Acts: Exemption of Faith Healers.—The defendants were charged with a conspiracy to violate the medical practice act and to obtain money under false pretenses. From a judgment of conviction they appealed to the appellate court of Illinois.

It appeared that defendant William Estep was pastor of the Central Baptist Church of Chicago, Inc. In June, 1947, the defendants, William and Dora Estep and Lillian Meiers, executed a common law trust establishing the Baptist Missionary Alliance to solicit funds to promote the work of God and publish literature on Christian psychology. Lillian Meiers then signed a certificate ordaining defendant William Estep a minister. Two months later the same three persons incorporated the National Institute of Orthoptics to establish and maintain classes, the most important of which was for Christian psychophysicians. This class, for which there was a fee of $500, consisted mainly of lectures by Estep on his healing ability. He had discovered that sickness is caused by a deficiency of life atoms and that one can be cured of anything by supplying the missing atoms, which he could take from the air and place in water. He had different instruments, which he had invented, including the "kansevisor," "vita-ray," "roto-ray," and "estemeter"; all of these were used in either the diagnosis or cure of disease. He sold these to his students. Nominally he may have received the purchase price in the form of voluntary contributions, but the contributions were always the same for the same machine. After the classes were under way Estep placed some of the brighter students in the office to treat patients. They received nominal salaries, and all "contributions" received from the patients over and above expenses went to the Missionary Alliance, of which the Esteps were lifetime officers. Other "graduates" who went outside to practice turned one-tenth of their income over to the Alliance. He then established a rest home, ostensibly for the use of all the ministers (graduates of Estep's school), but it was primarily a dwelling place for the Esteps. Eventually the defendants relinquished control of the office to the Ministerial Fellowship of the Missionary Alliance, but all acts of the fellowship were subject to veto by a majority of the trustees of the Alliance. The Esteps constituted the majority of the trustees. During treatments the patient was requested to pray and prayer was used by the attendant so that the will of the patient would be joined with the will of God at that time. The patient was told that God alone cures disease and that no man or remedy ever cured any ailment whatsoever; that the healing of human ailments by a Divine Healer, psychophysician, which defendants held themselves out to be, is accomplished through prayer and spiritual means. Investigation of illness is to ascertain the condition of the life energy, atomic deficiency, and vitamin deficiency of the body and is not a diagnosis of disease. This is necessary to comply with God's laws of healing. None of the methods used were represented as cures for disease, since God alone cures. Each patient signed an instrument stating that he understood he was to make a free will contribution for the healing Ministry of the Central Baptist Church of Chicago, Inc., and that all moneys subsequently paid would be a like or similar contribution to this Ministry.

The defendants contended that they were practicing faith healing. Faith healing, said the court, is specifically permitted under the medical practice act. It is a question of fact in each case, however, whether or not a faith healer is legitimately exercising his religious freedom or merely using religion as a subterfuge to practice medicine illegally. In this case, said the court, the evidence shows that the defendants used religion and faith healing only as a shield. They were entirely mercenary in their activities. The evidence shows that the "kansevisor," "vita-ray," "roto-ray," "estemeter," and "atomic water" were used by defendants as physical agencies to deceive and defraud the unfortunate and unwary.

We are satisfied, said the court of appeals, that the evidence shows that the defendants are guilty of conspiring to violate the medical practice act. They established the bare form of a church as a shield behind which to conduct their business of treating the sick for profit and using physical apparatus in their treatment. Under the evidence the jury had a right to find that prayer and spiritual exercise were not invoked in good faith, but only for the purpose of evading the provisions of the medical practice act.

In our view defendants were also guilty of conspiring to obtain money under false pretenses. Fixed charges were made for everything, including attendance at classes, the purchase of machines, and for the treatments. Ostensibly, all these were voluntary contributions; however, the contribution for a specific service or machine was always the same. Defendant William Estep referred to the "$20.00 treatment" when talking to one of his patients. The money received, with the exception of that paid out for the expense of maintaining the Loop office, went either to the defendants personally, to them as trustees and life officers of the Alliance, or was used to maintain them as the only permanent residents of the rest home, and no accounting of the money was made to anyone by them. The record is replete with false representations by defendants, such as that the "vita-ray" would put carbon atoms into the cells of the body; that the "estemeter" would determine the excess of alkaline or acid in the glands; that the "roto-ray" would make water radioactive; and that "atomic water" would make one immune from an attack by atomic bombs. It is inconceivable that anyone would "contribute" for one of these devices or for a treatment with one of them if he did not think that the machines and treatments would cure disease. A confidence game, said the court, is any scheme whereby a swindler wins the confidence of one by some false representation or device and then swindles him of money or property by taking advantage of the confidence, and the form of the transaction is immaterial. Relying on mankind's inherent faith in God and hope for the cure of disease, the defendants set themselves up as the possessors of devices that would simplify divine intervention and would cure disease. By this scheme they thus conspired to win the confidence of their victims.

On the basis of all of the evidence, therefore, the court of appeals affirmed the judgment of conviction of the defendants. *People v. Estep et ux., 104 N.E. (2d) 562 (Illinois, 1952).*

Blood Transfusion: Court's Right to Order.—This was a proceeding on a petition for the appointment of a guardian and for an order authorizing the guardian to consent to a blood transfusion for the ward. From a judgment granting the relief sought, the parents of the ward appealed to the Supreme Court of Illinois.

At the hearing, it appeared that the ward, when born, suffered from erythroblastosis fetalis (commonly called the Rh blood condition), a disease in which the red blood cells are destroyed by antibodies or poisons. Hospital records and medical testimony showed that the child's blood cell count had been dropping steadily since birth; that the normal blood cell count of a child of her age was about 5 million; but her blood cell count was 1,950,000; that antibodies in the baby's blood stream were gradually destroying all of the red blood cells; that her blood-supplying system was unable to furnish a supply of its own blood adequate to overcome the condition, and that a blood transfusion was necessary. Three physicians testified. Two were certain that the child would die unless a transfusion were administered. The third physician testified that the child had a slim chance to live without a transfusion but that, even if she did, her brain would probably be so injured that she would be mentally impaired for life. Concerning the degree of risk involved in a blood transfusion, all three physicians testified that there would be risks involved if diseased or mistyped blood was used in the transfusion but they all agreed that such risk was due only to the impossibility of completely eliminating human error and that, properly conducted, a transfusion would not involve any serious hazard.

The parents of the child testified that their refusal to consent to a transfusion was based on religious grounds, the father saying "it is my belief that the commandment given us in Genesis, Chapter 9, Verse 4, and subsequent commandment of Leviticus, Chapter 17, Verse 14, and also in the testimony after Christ's time and recorded in Acts, 15th Chapter, it is my opinion that any use of the blood is prohibited whether it be for food or whether it be for, as modern medical science puts it, for injections into the blood stream and as such I object to it. The life is in the blood and the life belongs to our father, Jehovah, and it is only his to give or take; it isn't ours, and as such I object to the using of the blood in connection with this case." Following the hearing the trial court appointed its chief probation officer to be guardian of the person of the child and directed him to consent to a blood transfusion. He did this, the transfusion was administered, and the guardianship dismissed some two months later.

The State first contended that the case is now moot and should be dismissed because the blood transfusion has been administered, the guardian discharged, and the proceeding dismissed. We find, said the Supreme Court, that this case falls within that highly sensitive area in which governmental action comes into contact with the religious beliefs of individual citizens. Both the construction of the statute under which the trial court acted and its validity are challenged. In situations like this one, public authorities must act promptly if their action is to be effective, and, although the precise limits of authorized conduct cannot be fixed in advance, no greater uncertainty would exist than the nature of the problems make inevitable. In addition, the very urgency that presses for prompt action by public officials makes it probable that any similar case arising in the future will likewise become moot by ordinary standards before it can be determined by this court. For these reasons the case should not be dismissed as moot.

The parents first contended that the trial court lacked jurisdiction because the child was not a "neglected" or "dependent" child within the meaning of the statute. So far as is here pertinent, said the Supreme Court, the statute defines a dependent or neglected child as one which "has not proper parental care." The record contains no suggestion of any improper conduct on the part of the parents except in their refusal to consent to a blood transfusion. Neglect, however, is the failure to exercise the care that the circumstances justly demand. It embraces wilful as well as unintentional disregard of duty. The question here is whether a child whose parents refuse to permit a blood transfusion, when lack of a transfusion means that the child will almost certainly die or at best will be mentally impaired for life, is a neglected child. In answering that question it is of no consequence that the parents have not failed in their duty in other respects. We entertain no doubt that this child, whose parents were deliberately depriving it of life or subjecting it to permanent mental impairment, was a neglected child within the meaning of the statute. The parents argued that they merely exercised their right to avoid the risk of a proposed hazardous operation—the transfusion—and that such a choice does not indicate a lack of proper parental care. The short answer, said the Supreme Court, is that the facts here disclose no such perilous undertaking, but, on the contrary, an urgently needed transfusion—virtually certain of success if given in time—with only such attendant risk as is inescapable in all of the affairs of life.

It was next contended that if the Juvenile Court Act is held to be applicable, it deprives the parents of freedom of religion and of their rights as parents in violation of the Constitutions of the United States and of the State of Illinois. This contention is based on the parents' objection to the transfusion because of their belief that blood transfusions are forbidden by the Scriptures. Concededly, said the court, freedom of religion and the right of parents to the care and training of their children are to be accorded the highest possible respect in our basic scheme. But neither rights of religion nor rights of parenthood are beyond limitation. In an early decision upholding a Mormon's conviction for bigamy against the defense of interference with religious freedom as guaranteed in the first amendment the Supreme Court of the United States said "Laws are made for the government of actions, and while they cannot interfere with mere religious belief and opinions, they may with practices. Suppose one believed that human sacrifices were a necessary part of religious worship, would it be seriously contended that the civil government under which he lived could not interfere to prevent a sacrifice? Or if a wife

religiously believed that it was her duty to burn herself upon the funeral pile of her dead husband, would it be beyond the power of the civil government to prevent her carrying her belief into practice?" And in another decision of the U. S. Supreme Court, it was said "The right to practice religion freely does not include liberty to expose the community or child to communicable disease or the latter to ill health or death. . . . Parents may be free to become martyrs themselves. But it does not follow that they are free, in identical circumstances, to make martyrs of their children before they have reached the age of full and legal discretion when they can make that choice for themselves."

The Supreme Court of Illinois accordingly held that neither the Juvenile Court Act nor the action of the trial court pursuant to that statute violated any constitutional rights of the parents, and the judgment of the circuit court permitting the giving of the blood transfusion was accordingly affirmed. *People v. Labrenz, 104 N. E. (2d) 769 (Illinois, 1952).*

Malpractice: Failure to Hit Trachea During Lung Mapping Procedure.—The plaintiff sued for damages alleged to have resulted from the negligence of the defendant physicians. From a judgment for the defendants on a directed verdict in their favor, the plaintiff appealed to the Supreme Court of Iowa.

As a preliminary to a more serious operation, the defendant Synhorst decided that the plaintiff's lungs should be "mapped" —that is, x-rayed after injecting into the trachea an opaque, oily substance that better reveals the bronchial tubes. Dr. Synhorst conferred with his associate, defendant Dr. Dorner, regarding the lung mapping, and the latter undertook to do it. Dr. Dorner attempted to inject the oily substance directly into the trachea with a hypodermic needle. This is a recognized method, although the oil is frequently dropped through the mouth without making an opening in the wall of the trachea. When Dr. Dorner jabbed the needle into the plaintiff's throat he said, "I have missed." He withdrew the needle and remarked, "Maybe I should do it the other way," but added, "I guess I will try once more." He then injected the needle into plaintiff's throat a second time. This time Dr. Dorner hit the trachea, and plaintiff felt the oil gurgle down into her lungs. Two openings in the plaintiff's throat were visible. The plaintiff went to her apartment from the hospital and immediately started to bleed profusely. Dr. Dorner was called and came to the apartment about 11:30 the same morning, saw the bleeding, and said if he had known plaintiff was going to do that he would have kept her in the hospital. He advised use of an ice pack on the throat and that plaintiff lie flat on her back. The profuse bleeding continued, however, and about 7:30 that evening plaintiff was returned to the hospital by a young physician sent to the apartment by Dr. Dorner. About 2 p. m. the following day Dr. Dorner and two throat specialists procured by him took plaintiff to an operating room, examined her throat, and performed some kind of an operation. About 7 p. m. the same day plaintiff was again taken to the operating room, her throat was cut open, and another operation was performed by one of the same throat specialists. Plaintiff continued to bleed and about 1:30 a. m. the next morning was taken to the operating room a third time, where she was given a general anaesthetic and a third operation was performed by one of the throat specialists. During this period plaintiff was given transfusions of four pints of blood. She narrowly escaped bleeding to death. The two defendants and the two throat specialists came together to see the plaintiff the following day, and one of the specialists said, referring to himself: "It took the old plumber to stop the leak." A physician connected with the hospital testified that the method of injecting the oil followed by Dr. Dorner, when properly executed, is safe; the diameter of the trachea is roughly that of a man's index finger; the trachea is a semirigid tube just below the Adam's apple, which most persons can feel; its purpose is to permit air to pass into the lungs; there are several important arteries and veins in the neck that carry a considerable quantity of blood. A few days after the last operation on the plaintiff, Dr. Dorner told her he had to operate on a man's lungs the next day and said, "I don't know whether I can perform that operation after the mess I made out of you." About the time of the last operation Dr. Dorner said to the plaintiff's mother and aunt he had done the same kind of lung-mapping operation hundreds of times and never had anything like this happen before. Later Dr. Dorner told the plaintiff, "Of course you won't owe me anything for that lung mapping." The plaintiff replied, "For goodness sakes, I wouldn't think so after what you have done to me." To that the physician made no response.

There is ample evidence, said the Supreme Court, that in attempting to inject the hypodermic needle into the plaintiff's trachea Dr. Dorner first missed that organ. His statement, "I have missed," clearly means that he missed the trachea. The needle, however, was injected into the plaintiff's throat. The finding is warranted that it was negligent for an experienced surgeon like Dr. Dorner to miss with a hypodermic needle an object of such size and obvious location as plaintiff's trachea. The defendants say in argument that all grounds of their motion to direct raise the proposition that there was insufficient evidence of negligence. We are clear that such contention cannot be sustained, said the court. There is much evidence that the plaintiff started to bleed profusely soon after the two openings were made in her throat. As stated, there is expert testimony that several important arteries and veins are in the throat and they carry a considerable quantity of blood. Indeed, these are facts of common knowledge. To cut one's throat is commonly regarded as a serious injury because of the danger from loss of blood.

There is also expert evidence that the method pursued by Dr. Dorner is safe when properly executed. This fairly implies when the needle does not miss the trachea. As Dr. Dorner said, he had done such a lung-mapping operation hundreds of times and never had anything like this happen before. It may be inferred that his needle had not missed the mark before, and the fact it did in this instance is the reason the plaintiff, of the hundreds of his patients whose lungs he had mapped, suffered great loss of blood.

Dr. Dorner's other statements about "the mess I made out of you" and that he would not charge for "that lung mapping," apparently agreeing with plaintiff no charge should be made, are in the nature of admissions that aid the plaintiff's case. Dr. Dorner's statements here can hardly be called mere expressions of regret or sympathy.

From all of the foregoing considerations, said the court, reasonable minds could find that Dr. Dorner punctured a blood vessel in the throat when his hypodermic needle missed the mark and that this caused the plaintiff's excessive bleeding.

It is sufficient if under the evidence and facts of common knowledge the plaintiff's theory is reasonably probable, not merely possible, and more probable than any other theory based thereon. It is not necessary that the proof be conclusive or exclude every other suggestion or possible cause. We have not overlooked the defendant's argument that medical testimony was necessary to show just how the plaintiff was injured and that Dr. Dorner was negligent, said the court. We are aware of no rule that the nature of an injury must be shown by medical testimony if the injury is such that it may satisfactorily be shown by other evidence. We think the nature of the plaintiff's injury is sufficiently shown here. There is some medical testimony that bears on the kind of injury the plaintiff received. It was unnecessary to show the precise location of the blood vessel in the plaintiff's throat where "the leak," as the throat specialist called it, occurred. As we have previously held, the finding is warranted that there would have been no such leak and consequent loss of blood if the hypodermic needle had not missed its mark.

On the issue of Dr. Dorner's negligence, it is true ordinarily that evidence of the requisite skill and care exercised by a physician must come from experts. But there are exceptions to this rule. Two exceptions to the rule requiring expert evidence in actions of this kind are applicable here. Where a physician's lack of care is so obvious as to be within the comprehension of laymen and to require only common knowledge and experience to understand, expert testimony is not necessary. Also, where a physician injures a part of the body not under treatment expert evidence is not always required.

After due consideration of all the contentions, the Supreme Court was of the opinion that the trial court erred in directing a verdict for the defendants at the close of the plaintiff's testimony. Accordingly the judgment of the trial court in favor of the physicians was reversed. *Stickleman v. Synhorst et al., 52 N.W. (2d) 504 (Iowa, 1952).*

MEDICAL LITERATURE ABSTRACTS

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Sarcoma Botryoides of Cervix. E. L. Richmond.—p. 201.

Poliomyelitis During Pregnancy.—A review of the literature on acute anterior poliomyelitis in pregnancy revealed 586 cases, but only 404 presented sufficient detail to allow correlation. The details of 24 not previously reported cases, observed at the Evanston Hospital in the seven year period, 1945 to 1951, are also reported. The distribution of poliomyelitis according to trimester of pregnancy is even, showing no significant differences. Approximately two-thirds of the cases fall into the age group 20 to 29 years. The death rate was 9.7%, which is higher than the death rate from poliomyelitis in the nonpregnant group. Although poliomyelitis appears to have no predilection for any particular trimester, it is significant that more than one-half of the maternal deaths occurred in the last trimester and in the puerperium. The period immediately following delivery appears to be the most critical time, since 12% of the maternal deaths occurred in this small group, which comprised only 3.5% of the total number of cases of poliomyelitis associated with pregnancy. The occurrence of residual paralysis appears not to be influenced by pregnancy. Poliomyelitis appears to have little if any effect upon uterine activity or development, nor does it impose any undue obstetrical hazard. Pregnancy, labor, and delivery in the absence of respiratory embarrassment are conducted along entirely orthodox obstetrical lines. In the presence of respiratory embarrassment due to excessive tracheobronchial secretions or bulbar involvement, the liberal and prompt use of tracheotomy is advocated. After the 32nd week of pregnancy, cesarean section may be a life-saving procedure, since the presence of the enlarged uterus may impose a serious burden upon the patient's respiratory apparatus. Pregnancy wastage occurred in one-third of the cases at the Evanston Hospital, and included five early spontaneous abortions, two stillbirths, and one neonatal death. Although no fetal defects occurred, data are presented that suggest that when poliomyelitis is acquired during the first or second trimester of pregnancy, babies delivered at term may show a significant retardation in general development and birth weight.

Viral Diseases in Pregnancy: Their Effect on the Fetus.—While rubella is generally recognized as a potent source of embryonic damage, the effects of other virus diseases upon the embryo are not well documented. These authors observed the following cases of virus disease during pregnancy: two cases of mumps, one case of measles, one case of varicella, one case of infectious mononucleosis, and one case of virus pneumonia. One case of mumps occurred at the eighth week of pregnancy and was followed by a spontaneous abortion. The other case of mumps occurred in the seventh month and a normal infant was delivered at term. Measles occurred at the eighth week of pregnancy, the pregnancy went to term, and the patient delivered a normal child. Severe varicella occurred at the 16th week of pregnancy; six weeks later, the patient had a spontaneous miscarriage, but the fetus showed no demonstrable abnormalities. This same patient subsequently had two premature deliveries resulting in living children so that it is possible that the varicella had no effect on the pregnancy. The patient with infectious mononucleosis at the second month had a normal infant at term. From a review of the world literature the authors compiled 154 cases of virus disease other than rubella in early pregnancy. An incidence of 21% fetal anomalies was found following these virus diseases in the first trimester of pregnancy. This is compared to the 40% incidence of anomalies following rubella. Considering fetal abnormalities as a whole, virus diseases per se play only a small role in etiology. The authors feel that the problem of congenital anomalies requires more clinical, statistical, and experimental investigation.

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Am. Practitioner & Digest of Treatment, Philadelphia

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Studies of Cerebrovascular Permeability.—The technique of the radiodye test for external localization of intracranial lesions has been extended and improved by Ashkenazy and Crawley. They used a highly sensitive scintillation counter and radioactive iodinated human serum albumin in brain tumor detection studies and also in studies following seizures and cranial trauma, and following diagnostic studies such as pneumography and angiography. Since radioactive diiodofluorescein, the isotope previously used for the radiodye test, actively remained in the vicinity of the cerebrum for approximately one-half to two and a half hours following intravenous administration, there was little opportunity for a dynamic approach by the use of serial readings with this dye. Radioactive iodinated human serum albumin on the contrary is not a foreign substance to the blood serum, it is not as rapidly excreted as a foreign vital dye, and, during its recirculation throughout a period of 24 to 72 hours and more, it has a greater opportunity to exude through the damaged capillary endothelial walls or the damaged blood-brain barrier and therefore can be readily detected through its tagged radioactive iodine gamma rays. Preliminary serial studies revealed that there is an optimum time for uptake in various lesions of the brain. Some tumors will show a pronounced focal uptake on a 20 to 30 hour reading following one injection of radioactive iodinated human serum albumin, whereas only a minimal uptake will be present on a six hour reading; the opposite also occurred in other types of lesions, thus showing the importance of serial studies. In a metastatic tumor, each of the nodules varies particularly in the time of uptake of the radioactive isotope, and this is correlated with the degree of vascularity, cellularity, and necrosis. This radioactive isotope external localization test is of value in the diagnosis of early tumor recurrences, particularly in those benign tumors whose removal results in a prolonged survival time for the patient. The test proved to offer considerable aid to the thoracic surgeons in their decisions to perform radical pneumonectomy or lobectomy for bronchogenic carcinoma. Metastatic cerebral lesions have usually been detected by this method much earlier than by any of the present clinical means of detection. False positive results of the test will be observed if it is done immediately following major epileptic phenomena. In such instances repeated studies will indicate the presence or absence of progressive changes in permeability of the blood-brain barrier. A microscopic diagnosis of tumor or abscess or subdural hematoma cannot be made by this method. There are no contraindications. The radioactive isotope external localization test has proved to be a valuable diagnostic adjunct in neurosurgical problems in particular.

Commissurotomy for Mitral Stenosis.—Of 50 patients between the ages of 19 and 53 with mitral stenosis who submitted to valvulotomy, 4 died. There were three operative deaths, two of them resulting from peripheral embolism immediately after operation and on the third postoperative day, respectively, and one presumably from progressive heart failure five days after the operation. The fourth patient died of peripheral embolism four months after the commissurotomy. The rationale and the operative technique of commissurotomy are outlined briefly. The authors' patients were grouped before the operation according to the classification for functional capacity proposed by the New York Heart Association; 21 (42%) were considered to be class 4, having the greatest functional impairment, 24 (48%) class 3, and 5 class 2; thus 90% of the patients were severely incapacitated. Optimum age for surgical intervention is between 20 and 40 years. Peripheral embolism occurred in 11 patients before the operation and in only one of these has embolism occurred subsequent to valvulotomy. Auricular fibrillation was present in 24 patients before surgical intervention. Fifteen patients in this group obtained good results, and there were three deaths. Commissurotomy during pregnancy was successful in two patients. A relatively small degree of mitral insufficiency does not contraindicate commissurotomy. Mitral insufficiency was increased after commissurotomy in two patients, although both were functionally improved. There was no recurrence of mitral stenosis after commissurotomy. Since this report was submitted, 13 additional patients have undergone commissurotomy without an operative death. In this group there were two patients, aged 52 and 58 years, respectively, both of whom obtained excellent functional results.

Antibiotics & Chemotherapy, Washington, D. C.

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Bioassay for Determination of "Ilotycin" in Serum and Other Body Fluids. D. W. Ziegler and J. M. McGuire.—p. 67.
Magnamycin: II. In Vivo Studies. A. R. English, H. E. Mullady and R. A. Fitts.—p. 94.

Jaundice Produced by Aureomycin.—Aureomycin, when added to a yeast diet that ordinarily produces hepatic necrosis will not have this effect when aureomycin is added. Patients with hepatic coma, chronic liver disease, and jaundice during pregnancy have improved clinically during aureomycin administration. Some evidence suggests that aureomycin may have a specific effect on cell proliferation and tumor growth. For these reasons aureomycin was employed in the treatment of patients with inoperable cancer. Although the patients were chronically ill, most of the pretreatment liver function tests were normal. Twenty-six courses of buffered aureomycin glycinate were ad-

ministered to 23 patients to the tumor site through an indwelling polyethylene cannula. Aureomycin was given alone in 10 courses, and combined with nitrogen mustard (HN_2) in 12, and with x-radiation in four courses. Four additional patients received aureomycin intravenously; one had concurrent HN_2 therapy and one had x-radiation. The aureomycin was dissolved in 20 to 25 cc. of isotonic sodium chloride solution; the dose schedule was 0.5 gm. four times daily, 1 gm. twice daily, or 0.5 gm. twice daily. The total dose varied from 4.5 to 64 gm., given over a period of 4 to 61 days. Serial blood chemical tests on these patients revealed minimal changes in prothrombin time; no change in cephalin flocculation; a rise of sulfobromophthalein (bromsulfalein®) retention during therapy with subsequent rapid return to normal; delayed and somewhat prolonged elevation of thymol turbidity; rise in total serum bilirubin chiefly due to increase in direct bilirubin; and concurrent elevation of icterus index and serum nonprotein nitrogen. These observations were compatible with an intrahepatic obstructive jaundice, which was quickly reversible upon discontinuance of medication. Frequently, mere reduction in dose of aureomycin permitted prolongation of therapy. Renal embarrassment as shown by a rising serum nonprotein nitrogen appeared to be proportional to the degree of organic renal damage previously present. For practical purposes the icterus index and serum nonprotein nitrogen determinations form a useful guide in therapy. If either is elevated above 80 (units or milligrams per cent) the dose of the drug should be reduced or its administration should be stopped.

Cross Resistance and Induced Sensitivity to Antibiotics.—Fusillo and associates tested 24 strains of gram-positive and gram-negative organisms for development of cross resistance or induced sensitivity to antibiotics. Upon exposure to aureomycin or oxytetracycline ("terramycin") given strains tended to develop resistance simultaneously to aureomycin and oxytetracycline. Cross resistance between aureomycin, chloramphenicol, and oxytetracycline occurred more frequently with Aerobacter aerogenes, less so with Escherichia coli, and rarely with the gram-positive organisms. Exposure of the gram-positive bacteria to aureomycin, chloramphenicol, or oxytetracycline failed to produce increased sensitivity of these organisms to penicillin. Except for one strain of E. coli, exposure to chloramphenicol, aureomycin, or oxytetracycline failed to produce increased sensitivity to streptomycin.

Blood, New York

8:101-194 (Feb.) 1953

Plasma Thromboplastin Component (PTC). Hitherto Unrecognized Blood Coagulation Factor: Case Report of PTC Deficiency. S. G. White, P. M. Aggeler and M. B. Glendening.—p. 101.
Researches on Circulating Anticoagulant in Hemophiliac: II. Effect of Administration of ACTH and Cortisone. S. van Creveld, P. G. Hoorweg and M. M. P. Paulssen.—p. 125.
Increase in Circulating Red Cell Volume After Oral Administration of Pituitary Anterior Lobe. A. N. Contopoulos, D. C. Van Dyke, M. E. Simpson and others.—p. 131.
White Thrombo-Embolism and Vascular Fragility in Hamster Cheek Pouch After Anticoagulants. G. P. Fulton, R. P. Akers and B. R. Lutz.—p. 140.
Role of Spleen in Leukocytosis Following Intra-Arterial Administration of Epinephrine. H. R. Bierman, R. L. Byron Jr. and K. H. Kelly.—p. 153.
Studies on Mechanical Fragility of Erythrocytes. I. Normal Values for Infants and Children. R. B. Goldbloom, E. Fischer, J. Reinhold and D. Yi-Yung Hsia.—p. 165.
*Hematopoietic Depression Induced by Chloromycetin. A. Erslev.—p. 170.
Erythroblastic Anemia: Manifestation of Folic Acid Deficiency. H. O. Nieweg and A. Arends.—p. 175.

Hematopoietic Depression Induced by Chloramphenicol.—Two patients are reported on in whom treatment with chloramphenicol (chloromycetin®) appeared to be responsible for erythropoietic depression. The first had been in good health until three weeks before hospitalization, when he developed diarrhea and fever. The diarrhea subsided temporarily after administration of paregoric and penicillin for two days. However, the fever continued, and 10 days before admission he had a new attack of diarrhea with almost black stools. He was given sulfamerazine for five days, but his condition continued to deteriorate and he was admitted to the hospital in a semicomatose state. During the first three days he was given blood and aureomycin. When the diagnosis of typhoid was established, treatment with chloramphenicol was begun, a total of 85.5 gm. being given during a 25 day period. The patient became afebrile, but the fecal cultures continued to yield Eberthella typhosa. A few days after chloramphenicol was discontinued, the patient again became febrile and a second course of the drug was initiated, 70 gm. being given in a 19 day period. Thus this patient received a total of 155.5 gm. of chloramphenicol. In the second patient blood culture and bone marrow culture were positive for Salmonella montevideo, and this patient received a total of 66.5 gm. of chloramphenicol in 24 days. Anemia and hypoplasia of the erythropoietic bone marrow tissue were observed in both patients. Other drugs had been given prior to and during chloramphenicol administration, but when chloramphenicol was discontinued a striking reticulocyte response occurred along with reappearance of normoblasts in the bone marrow. This sequence indicates a direct relationship between the administration of chloramphenicol and the erythropoietic hypoplasia. Chloramphenicol contains a nitrobenzene ring and from the beginning of its clinical use in 1948 it was considered a potential bone marrow toxin. So far 40 cases have been reported in which administration of chloramphenicol was followed by maturation arrest or hypoplasia of bone marrow elements; 27 of these terminated fatally. This hematopoietic bone marrow depression is still considered a rare complication of chloramphenicol therapy. However, Wilson found it in 2 of 62 treated cases, Lindau in 3 of 8 cases, and both cases reported here were discovered within one month. Hematological observation is necessary in all patients who receive chloramphenicol, and the drug must be stopped promptly if there are any signs of bone marrow depression.

Cancer, Philadelphia

6:1-214 (Jan.) 1953. **Partial Index**

*Malignant Melanoma: Clinicopathological Analysis of the Criteria for Diagnosis and Prognosis. A. C. Allen and S. Spitz.—p. 1.
Indications for Reconstruction at Time of Surgical Excision of Cancer of Oral Cavity. H. Conway and J. E. Murray.—p. 46.
Simultaneous Occurrence of Thyroiditis and Papillary Carcinoma: Report of Two Cases. G. Crile Jr. and E. R. Fisher.—p. 57.
Significance of Fibrinolysis Occurring in Patients with Metastatic Cancer of Prostate. H. J. Tagnon, W. F. Whitmore Jr., P. Schulman and S. C. Kravitz.—p. 63.
Method of Enhancing Effectiveness of Radiotherapy in Cancer of Uterine Cervix. J. B. Graham and R. M. Graham.—p. 68.
Electrocervical Potentials: Are They Pathognomonic of Cancer? L. W. Max, E. A. Mauss, E. Day and C. P. Rhoads.—p. 77.
Roentgenological Appearance of Parenchymal Involvement of Lung by Malignant Lymphoma. L. L. Robbins.—p. 80.
Surgical Considerations in Treatment of Sarcoma of Buttock. L. Bowden and R. J. Booher.—p. 89.
Heterologous Transplantation of Human Neural Tumors. E. T. Krementz and H. S. N. Greene.—p. 100.
Effect of Thiouracil on Collection of Radioactive Iodine in Experimentally Induced Thyroid Tumors. W. L. Money, P. J. Fitzgerald, J. T. Godwin and R. W. Rawson.—p. 111.
Treatment of Human Cancer with Intra-Arterial Nitrogen Mustard (Methylbis [2-Chloroethyl] Amine Hydrochloride): Utilizing Simplified Catheter Technique. R. D. Sullivan, R. Jones Jr., T. G. Schnabel Jr. and J. M. Shorey.—p. 121.
Clinical Studies on Carcinolytic Action of Triethylenephosphoramide. S. Farber, R. Appleton, V. Downing and others.—p. 135.
*Celiac Accessory Adrenal Glands. L. S. Graham.—p. 149.
Biological Properties of Mouse Leukemia Agent. L. Gross.—p. 153.
Adenomatous Polyp of Jejunum Composed of Gastric Mucosa. I. Gore and W. J. Williams.—p. 164.
Hemangiopericytoma of Rectum. S. Kay and H. J. Warthen.—p. 167.
Primary Carcinoma of Liver in Infancy and Childhood. N. H. Bigelow and A. W. Wright.—p. 170.

Malignant Melanoma.—The clinical data of 934 patients with malignant melanomas were analyzed. The histological slides of the primary lesions were available in 337 of these cases. Compared with their respective surface areas, there is a disproportionately greater incidence of primary melanocarcinomas on the soles of the feet, the mucosa of the female genitalia, and the head and neck region. The diagnosis of primary melanocarcinoma cannot be made unequivocally in the absence of overlying junctional change. By the use of the criterion of the junctional change, multiple primary melanocarcinomas may be detected in the same individual. Twelve such instances (3.6%) were noted among 337 patients. The distinction of a

second primary melanocarcinoma from a metastasis is of prognostic importance. In a patient with a melanocarcinoma a meticulous search should be made periodically to discover additional primary melanocarcinomas, for if overlooked or treated late, they may cause the death of the patient. Four cases of malignant blue nevi were discovered, and their differentiation from the benign blue nevi are discussed. Five melanocarcinomas were diagnosed in children; it was possible to differentiate the histological pattern from that of the benign juvenile melanomas. Lesions in adult life are occasionally erroneously diagnosed as malignant melanomas when they are actually benign juvenile melanomas that have persisted beyond puberty. Superficial melanocarcinomas, as herein defined, should be segregated from the more deeply invasive tumors. The superficial melanocarcinomas have a better prognosis than the more deeply infiltrative tumors. The epidermal junctional nevus, or the junctional component of the compound nevus, is the source of the melanocarcinomas of the skin and of mucous membranes, the rare malignant blue nevus excepted, of course. Approximately, 1 of every 10 cutaneous melanocarcinomas is superimposed on compound nevi or juvenile melanomas. Melanocarcinomas of mucous membranes—of the urogenital, anorectal, and head and neck regions—are almost always fatal. Epidermal or epithelial hyperplasia is almost always present in melanocarcinomas. Pigmentation is found oftener in cutaneous melanocarcinomas than in those of mucous membranes; in the latter, the tumors lack pigmentation in about half the cases. Accordingly, the absence of melanin in a tumor of mucous membranes is a completely unreliable basis for the exclusion of the diagnosis of melanocarcinoma. The junctional change is the important diagnostic criterion. A patient with a melanocarcinoma exhibits a diathesis for the activation of junctional nevi in various parts of the body but particularly in the vicinity of the primary tumor. Local recurrences as well as metastasis to regional lymph nodes do not preclude ultimate survival. A relatively high percentage of patients (68.3%) who survived five years or longer were treated merely by local excision of their primary tumors. The prognosis for cutaneous melanocarcinomas is better in women than in men.

Celiac Accessory Adrenal Glands.—Since bilateral adrenalectomy has been attempted in the treatment of prostatic and mammary cancers, interest has been aroused in accessory adrenal organs. Portions of adrenal cortical tissue have been found related to the liver, pancreas, mesentery, and the genital tract. Studies described here aimed at ascertaining the incidence of accessory adrenals in the celiac plexus region. Material was obtained from 100 successive autopsies performed at a center for cancer and allied diseases. After examination of the aorta, renal arteries, and vena cava, the adrenal glands were dissected free and removed. The aorta and vena cava were then divided just below the origin of the renal arteries. Sharp dissection was then carried anteriorly and superiorly for at least 2 cm. above the origin of the celiac artery. On the anterior aspect, 3 cm. of the celiac and superior mesenteric arteries with adjacent tissues were desired in the usual adult case, and less for children. This block of tissues was placed in 10% formaldehyde ("formalin") and dissected 24 to 48 hours later. Dissection consisted of slicing the entire block of tissue at 2 mm. intervals, perpendicular to the long axis of the aorta. Each cross section was then examined for the accessory adrenal glands and/or accessory adrenal cortical tissue. Material recognizable grossly as comprising either type of tissue was removed, and embedded in paraffin, sectioned, and stained with hematoxylin and eosin for microscopic examination. In 68 of the 100 cases examined no accessory adrenal tissue was found in the celiac plexus region. Of the other 32, in which some form of accessory adrenal tissue was present, 16 had both cortical and medullary tissue and 16 had cortical tissue only. The average size of the accessory glands was 7 by 4 by 3 mm. Whether these structures would be capable of supporting life after bilateral adrenalectomy has not been established as yet. The 100 autopsied cases included 3 in whom bilateral adrenalectomy had been performed. In one, no accessory adrenal tissue was present in the celiac region; in the other two there were small nodules composed only of cortical tissue. In one case of leukemia, corticotropin had been given in an amount to cause histological alteration of both the normal gland and a single accessory gland. This suggests the ability of this cortical tissue to respond to the stimulus of corticotropin. The location of the accessory adrenals in the celiac region indicates an early embryological origin of these structures rather than pinching off of the tissue of the adrenal in later life.

Georgia Medical Association Journal, Atlanta

42:65-104 (Feb.) 1953

Treatment of Severe Arterial Hypertension with Hexamethonium and Hydrazinophthalazine. I. H. Page.—p. 78.
Management of Auricular Fibrillation. R. L. McMillan.—p. 82.
Low Salt Syndrome and Its Treatment. C. M. Ballentine.—p. 84.
*Does Exertion Precipitate Coronary Thrombosis? J. L. Richardson.—p. 89.
Intractable Heart Failure. L. K. Levy.—p. 92.
Prognostic and Therapeutic Implications of Classification of Hypertensive Disease. E. R. Cook.—p. 95.

Does Exertion Precipitate Coronary Thrombosis?—The opinion of clinicians as to whether or not exertion precipitates coronary thrombosis is divided. To throw more light on the subject, Richardson analyzed the activity preceding and coinciding with 100 attacks in 96 patients, as well as the time of day of the attack. He noted particularly whether the activity at the time of the attack departed in any way from the person's normal activity for that time of day on that particular day of the week. Some patients insisted that exertion precipitated the attack, but questioning revealed that the exertion in most instances was not unusual, that at times it occurred hours before the attack, that there was no discomfort during the exertion, and that actually the attack came on while the patient was at rest. In only 3 of the 100 attacks was the patient engaged in unusual exertion when the attack occurred. One of these three was lifting a heavy object out of his car when the attack occurred, but he did this about once a week. Six months later he had a second attack that came on at 2:00 a. m. and awakened him out of a sound sleep. Another was on his vacation and was walking up a steep grade when the attack occurred. This one had a second attack nine months later at 3:00 p. m. on a Saturday afternoon while lying in bed. The third had his attack about 10 minutes after he had engaged in a rather heated argument; it was learned that heated arguments were a part of his daily routine. The attacks were evenly divided between the working and leisure hours. These findings concur with those of Master and strengthen the belief that attacks of coronary thrombosis will occur at any time day or night, and are in no way related to the person's activity or emotional state.

Journal of Allergy, St. Louis

24:1-96 (Jan.) 1953

Fatal and Near-Fatal Penicillin Anaphylaxis: Three New Cases With Note on Prevention. S. Siegal, R. W. Steinhardt and R. Gerber.—p. 1.
Relationship of Experimentally Produced Asthmatic Attacks to Certain Acute Life Stresses. D. H. Fundenstein.—p. 11.
Histamine Content of Allergic and Nonallergic Human Nasal Mucous Membrane with Simultaneous Observations on Eosinophils. J. D. Baxter and B. Rose.—p. 18.
*Mucoproteins of Nasal Mucosa of Allergic Patients Before and After Treatment with Corticotropin. B. Z. Rappaport, M. Samter, H. R. Catchpole and F. Schiller.—p. 35.
Inhibition of Histamine Death in Pertussis-Inoculated Mice by Cortisone and Neoantergan. L. S. Kind.—p. 52.
Epinephrine Base Suspended in Water with Thioglycolate. H. L. Naterman.—p. 60.
Studies in Food Sensitivity: II. The Effect of Protein Digestion on Antigenicity of Foods as Determined by Skin Tests and Clinical Food Trials. S. Bloom, H. Markow and B. Redner.—p. 64.
Mercuhydrin Sensitivity: Report of Case. W. H. Harris Jr.—p. 73.
An Introduction to Physical Techniques of Electrophoresis and Ultracentrifugation. E. L. Becker.—p. 78.

Mucoproteins of Nasal Mucosa of Allergic Patients.—Nasal mucosa was obtained by biopsy from normal persons and from ragweed-sensitive patients before and after treatment with corticotropin (ACTH). A total dose of 315 units of corticotropin was administered within four days, with 25 units every six hours during the first two days, 20 units every six hours

during the third day, and 15 units every six hours during the fourth day. The biopsies were made one to three hours after the final doses. Tissues were fixed by freezing and drying, and were stained routinely and by the periodic acid-fuchsin method for mucopolysaccharides and glycoproteins. Comparison of the microscopic appearance of the nasal mucosa of the normal persons with that of untreated allergic patients exposed to the specific antigen revealed changes involving the connective tissue matrix and connective tissue cells in the allergic patients, and the extent of these changes were related to the severity and duration of exposure. Changes consisted of a decrease in glycoprotein staining of connective tissue cells, of ground substance, and of basement membranes of surface epithelium, capillaries and glands; interepithelial cement of surface and gland cells was diminished, and mucigen granules of glands were decreased. Comparison of the microscopic appearance of the nasal mucosa of the untreated allergic patients with that of the allergic patients treated with corticotropin revealed that corticotropin reversed the changes that had been observed in the untreated patients. The effect of corticotropin on the microscopic appearance of the nasal mucosa in allergic patients may be summed up as a restoration toward normal of all phases of ground substance and cellular activity. This would imply, in general terms, a termination of the phase of tissue breakdown, which has been described by the authors as depolymerization of a complex structure to its individual structural units. The mechanism of this, as of the reverse process, is unknown.

Journal of Bacteriology, Baltimore

65:1-112 (Jan.) 1953. Partial Index

Infrared Spectrophotometry of Enteric Bacteria. S. Levine, H. J. R. Stevenson, L. A. Chambers and B. A. Kenner.—p. 10.
Rapid Cell Volume Assay for Fungitoxicity Using Fungus Spores. G. R. Mandels and R. T. Darby.—p. 16.
Studies of Mutability in Nutritionally Deficient Strains of Escherichia Coli. I. Genetic Analysis of Five Auxotrophic Strains. M. Demerec and E. Cahn.—p. 27.
Metabolism of Species of Streptomyces: VI. Tricarboxylic Acid Cycle Reactions in Streptomyces Coelicolor. V. W. Cochrane and H. D. Peck Jr.—p. 37.
Influence of Concentration of Iron on Production of Fluorescin by Pseudomonas Aeruginosa. J. R. Totter and F. T. Moseley.—p. 45.
Variants of Streptomyces Griseus Induced by Ultraviolet Radiations. R. C. Pittenger and E. McCoy.—p. 56.
Factors Which Affect Oxidation of Benzoic Acid by Strain of Pseudomonas Aeruginosa. F. Bernheim and W. E. DeTurk.—p. 65.
Studies on Metabolism of Mycobacterium Tuberculosis. G. P. Youmans and A. S. Youmans.—p. 92.
Studies on Bacterial Resistance to Inhibition and Killing by Phenol. H. Berger and O. Wyss.—p. 103.

Journal Clin. Endocrin. & Metab., Springfield, Ill.

13:1-138 (Jan.) 1953

On Certain Physiologic Responses to Intravenous Injection of Calcium Salts Into Normal, Hyperparathyroid and Hypoparathyroid Persons. J. E. Howard, T. R. Hopkins and T. B. Connor.—p. 1.
*Multiple Endocrine Adenomas: Report of 8 Cases in Which the Parathyroids, Pituitary and Pancreatic Islets Were Involved. L. O. Underdahl, L. B. Woolner and B. M. Black.—p. 20.
Conversion of Cortisone Acetate to Other Alpha-Ketolic Steroids. R. B. Burton, E. H. Keutmann and C. Waterhouse.—p. 48.
Antidiuretic Activity of Serum of Normal and Diseased Subjects. W. F. Perry and T. W. Fyles.—p. 64.
Effect of Intravenous ACTH, With and Without Epinephrine. J. R. Martin and C. J. Pattee.—p. 73.
Syndrome Characterized by Estrogenic Insufficiency, Galactorrhea and Decreased Urinary Gonadotropin. J. Argonz and E. B. del Castillo. —p. 79.
Factors Governing Development of Chick Embryo Thyroid: I. Determination of Time at Which I^{131} Collection Begins. J. B. Trunnell and F. T. Brayer.—p. 88.
*Post-Thyroidectomy Myxedema After Preoperative Use of Antithyroid Drugs. E. C. Bartels.—p. 95.
*Results of Treatment of Toxic Goiter with Radioactive Iodine. L. Seed and B. Jaffé.—p. 107.

Multiple Endocrine Adenomas.—The occurrence of a pituitary tumor, islet cell adenoma, and parathyroid tumor or of a combination of any two of these in the same patient is rare and was reported in only 14 cases collected from the literature. The authors report eight additional cases of this syndrome in four men and four women between the ages of 24 and 54 who were admitted to the Mayo Clinic. Of the eight patients, all had parathyroid tumors, and four had pituitary tumors. Five had islet cell tumors, and the remaining three had hypoglycemia. Multiple tumors occurred in both parathyroids and in pancreatic islets. Therefore, it would appear that the demonstration of multiple tumors in either of these organs in a given patient should be a basis for investigation of hyperfunction of the other, and a search for intrasellar tumor as well. Similarly the occurrence of hyperfunction or tumor in any two of these three endocrine organs should arouse one's suspicion of involvement of the third. A further point, of practical importance to the surgeon, is the necessity of anticipating the presence of multiple tumors at operation in either the parathyroids or the pancreas in a patient with this syndrome.

Myxedema and Preoperative Use of Antithyroid Drugs.—Antithyroid drugs were given to 942 hyperthyroid patients before thyroidectomy; antithyroid treatment was continued until a euthyroid state was attained and thyroidectomy then was performed. Postoperative myxedema developed in 69 patients (7.3%); it was permanent in 49 patients (5.6%) and transient in 13 (1.3%). Seven patients (0.8%) were lost to observation. Postoperative myxedema was twice as common after a second thyroid operation. Myxedema following subtotal thyroidectomy was not observed to be any commoner after preoperative preparation with antithyroid drugs than it was after preparation with iodine. Of the 69 patients with postoperative myxedema, 66 had primary hyperthyroidism (toxic diffuse goiter) and only 3 had adenomatous goiter associated with hyperthyroidism; myxedema thus rarely occurred in patients with adenomatous goiter. The pathological study revealed the presence of strumitis in the thyroid tissue removed from 12 (17%) of the 69 patients with myxedema. Further study of the significance of strumitis is needed. The diagnosis of myxedema in the 69 patients was established either by subjective symptoms and objective signs or by laboratory findings (altered basal metabolic rate and plasma cholesterol level). The plasma cholesterol level was considered a most valuable aid in the diagnosis, while the basal metabolic rate was less informative. A retarded growth curve proved significant in determining the presence of myxedema in children. Postoperative myxedema was present most frequently by the end of the third postoperative month. In some cases the condition did not develop until five years after thyroidectomy, indicating the need for periodic metabolic studies for at least five years after thyroidectomy. The daily dose of desiccated thyroid required to control postoperative myxedema varied from ⅛ grain (8.1 mg.) to 2 grains (129.6 mg.). Myxedema was completely controlled in most cases on daily doses varying from ½ grain (32.4 mg.) to 1½ grains (97.2 mg.).

Treatment of Toxic Goiter with Radioactive Iodine.—Of 257 patients with hyperthyroidism treated with radioactive iodine (I^{131}) and followed for from six months to two years, a satisfactory remission was obtained in 63%, hypothyroidism occurred in 11%, and in 25% the results were considered unsatisfactory. Of 1,720 similar cases reported in the literature up to April, 1952, a remission was obtained in 80%, hypothyroidism occurred in 9%, and in 11% the results were classified as incomplete or unsatisfactory. There were very few complications, and none were serious. Genetic injury and carcinogenic effect remain purely hypothetical possibilities. As a result of their experience and of the observations reported in the literature the authors state that administration of I^{131} is the treatment of choice in recurrent toxic diffuse goiter and in most toxic diffuse goiters in patients aged over 45. Patients with large goiters are more difficult to cure and it is probably better to operate on them. With this exception, it may be that all patients with toxic diffuse goiter are best treated by radioactive iodine. Surgical treatment is the method of choice in toxic nodular goiter, except for unusual circumstances; cure by I^{131} is more difficult and less certain, and the goiter itself rarely entirely disappears even when the hyperthyroidism is eliminated. There are no criteria by which one can accurately estimate dosage of I^{131}. A tracer dose is necessary to determine the

presence and degree of thyroid uptake. In toxic diffuse goiter the uptake is usually in the neighborhood of 70%. Under these circumstances, the average patient with a small goiter can be given 6 to 8 mc. as an initial dose. The dose may be decreased to 4 mc. if the symptoms are mild and if the goiter is very small, or it may be increased up to 15 or 20 mc. if the goiter is very large and the symptoms severe. Under this regimen, control of symptoms is obtained in over half the cases after the initial dose, and hypothyroidism appears in another 10 to 15%. In toxic nodular goiter the thyroid uptake is lower. If it is below 20%, treatment with I^{131} is not advisable under almost any circumstances. The initial dose in a patient with a toxic nodular goiter of moderate size is 20 mc.; if the goiter is large or the symptoms severe, this can be raised to 35 mc. Repeated doses at intervals of two months are usually necessary.

Journal of Neurosurgery, Springfield, Ill.

10:1-90 (Jan.) 1953

Tumors of Posterior Portion of Third Ventricle. R. W. Rand and L. J. Lemmen.—p. 1.
Painful Spina Bifida Occulta: with Review of Literature. F. Jelsma and E. J. Ploetner.—p. 19.
Studies on Cerebral Intravascular Pressure: Further Data Concerning Residual Pressure in Components of Circle of Willis and in Blind Arterial Segments. B. Woodhall, G. L. Odom, B. M. Bloor and J. Golden.—p. 28.
Aneurysmal Origin of Nonfatal Subarachnoid Hemorrhage: Angiographic Survey of 53 Cases. W. B. Hamby.—p. 35.
Effect of Contrast Media on Blood-Brain-Barrier. R. C. Bassett, J. S. Rogers, G. R. Cherry and C. Gruzhit.—p. 38.
Cerebral Circulation in Postoperative Intracranial Hypotension. H. A. Shenkin.—p. 48.
*Personal Experience in Surgical Treatment of Epilepsy. S. Obrador. p. 52.
Duration of Neuromuscular Function After Nerve Section in Man. W. M. Landau.—p. 64.

Surgical Treatment of Epilepsy.—Of 130 patients with epilepsy operated on during the last five years, 90 had epilepsy secondary to expanding intracranial lesions, 11 had localized cerebral scars caused by trauma, bullets or circumscribed infections, 19 had cerebral atrophies, and 10 had psychomotor and other functional disturbances. Of the 90 patients with expanding intracranial lesions, 49 had gliomas and 14 meningiomas; among the rarer lesions were tuberculomas in 5 patients, cysticercosis in 2, and hydatid cysts in 2. In this group of 90 patients an effort was made to extirpate the abnormal growth and to leave a cerebral scar as clean and as small as possible, but results are not reported. In the group of patients with localized cerebral scars, the best results were obtained in those with scars in the frontal or occipital lobes, where wide resections are feasible. Of the 19 patients with cerebral atrophies, 12 had cerebral hemiatrophies associated with infantile hemiplegia, 3 had porencephalic cysts and malformations, and 4 had some cortical atrophy of unknown origin. In six of the 12 patients with infantile hemiplegia associated with epilepsy, a limited removal of the cystic atrophic areas or partial resection of the most affected cortical areas was carried out, while the remaining six submitted to hemispherectomy. Of the latter six patients, four survived and obtained good results, although three still have occasional seizures and contralateral electroencephalographic disturbances. Of the 10 patients with psychomotor attacks and other functional disturbances, 8 underwent anterior temporal lobectomy. Results obtained with this method were satisfactory in four patients with a history of pure psychomotor seizures and with abnormal electrical discharges (sharp spikes and occasional slow waves) in the temporal region, while results were poor in the other four patients with a history of combined psychomotor and generalized convulsive attacks with focal temporal discharges and other more diffuse electroencephalographic dysrhythmias. It seems therefore that anterior temporal lobectomy should be limited to the purer clinical forms of psychomotor epilepsy with a well-localized electrical focus in the anterior temporal region. In the remaining two patients, small electrolytic lesions produced in the thalamus were given a therapeutic trial. One of the patients with a rare form of partial myoclonic seizures obtained some relief.

Journal of Pediatrics, St. Louis

42:1-140 (Jan.) 1953

Causes of Fetal and Neonatal Death with Special Reference to Pulmonary and Inflammatory Lesions. J. B. Arey and J. Dent.—p. 1.
Rate of Growth in Progeria with Report of Two Cases. J. V. Cooke. —p. 26.
Studies of 17-Hydroxycorticosteroids in Children: I. Peripheral Blood Levels in Health and Disease. R. S. Ely, V. C. Kelley and R. B. Raile. —p. 38.
Id.: II. Response of Blood Levels to Injection of Certain Hormones. R. B. Raile, R. S. Ely and V. C. Kelley.—p. 46.
Part of the Technique of Feeding in Etiology of the Diseases of Young Infant. E. Gottschalk.—p. 54.
Epidemic of Narcotic Use Among School Children in New York City. H. Jacobziner.—p. 65.
Acute Cerebellar Ataxia in Children: Report of Three Cases. A. Goldwyn and A. M. Waldman.—p. 75.
*Technique for Obtaining Blood Specimens and Giving Transfusions in Small Infants. H. W. Kunz.—p. 80.
Chylous Ascites in Siblings. C. Lee and J. R. Young.—p. 83.
Case of Triatrial Heart. S. A. Doxiadis and J. L. Emery.—p. 87.
Congenital Deficiency of Abdominal Muscles (with Associated Multiple Anomalies). B. J. Mathieu, S. Goldowsky, N. Chaset and P. L. Mathieu Jr.—p. 92.
Physiologic and Clinical Significance of Immaturity of Kidney Function in Young Infants. H. L. Barnett and J. Vesterdal.—p. 99.

Obtaining Blood Specimens and Giving Transfusions to Small Infants.—It may be necessary to give blood transfusions to or draw blood from premature and newborn infants when peripheral veins are collapsed and when there is no time for venesection. Kunz says that at the suggestion of Zellweger of Beirut he has used the torcular Herophili through the posterior fontanel for drawing of venous blood and for giving emergency transfusions in premature infants. The superior sagittal sinus, the left and right lateral sinus, the occipital sinus, and the straight sinus join directly under the posterior fontanel to form the torcular Herophili. This is a fairly large pool of blood that is easily accessible even when the bones are overriding or the posterior fontanel appears to be closed. Over 100 venepunctures in small premature infants have been carried out using this procedure without any difficulties. It was easy to obtain 3 to 5 cc. of blood from infants weighing less than 1,200 gm. Only two transfusions have been given into the straight sinus, both times as an emergency procedure. One infant weighed 1,900 gm. and the other one 1,000 gm. The technique was easy and the procedure successful in both cases.

Journal of Thoracic Surgery, St. Louis

25:1-110 (Jan.) 1953

Inferior Esophageal Constrictor in Relation to Lower Esophageal Disease. E. B. Kay.—p. 1.
Experiences with Operative Management of Delayed Restoration of Alimentary Continuity in Children Originally Treated by Multiple Stage Procedure for Correction of Congenital Tracheoesophageal Defects. N. L. Leven and R. L. Varco.—p. 16.
Surgical Treatment for Congenital Aorticopulmonary Fistula: Experimental and Clinical Aspects. H. W. Scott Jr. and D. C. Sabiston Jr. —p. 26.
Pulmonary Function After Multiple Segmental Resection for Bronchiectasis. R. H. Overholt, J. H. Walker and B. Etsten.—p. 40.
*Indications for and the Results of Commissurotomy for Mitral Stenosis. R. P. Glover, T. J. E. O'Neill, J. S. C. Harris and O. H. Janton. —p. 55.
New Instrument for Cardiac Valvular Commissurotomy. H. B. Larzelere and C. P. Bailey.—p. 78.
Pulmonary Resection in Treatment of Lung Tuberculosis. E. J. Zerbini. —p. 82.
Simple Test of Pulmonary Function Employing Oximeter. R. S. Alexander and M. M. Reydman.—p. 95.
Successful Construction of Artificial Antethoracic Esophagus. J. M. Miller, M. Ginsberg and C. P. Scarborough.—p. 107.

Commissurotomy for Mitral Stenosis.—Among 256 patients with mitral stenosis on whom mitral commissurotomy was performed between February, 1949 and April, 1952, there were 14 operative deaths (5.4%). Of the 256 patients, 118 female and 46 male patients between the ages of 4 and 59 were followed-up for six months to three and one-half years, a period sufficiently long to make evaluation possible. The valve commissures were separated with the index finger and a specially devised guillotine knife in 114 patients, with the knife only in 21, with the finger alone in 28, and by an unspecified technique in one. Among these 164 patients there were 10 operative deaths (6%) and 9 late deaths (5.4%), an over-all mor-

tality of 11.5%. Of the surviving 145 patients, 80 obtained excellent results in that they have been restored to a normal, productive life, 45 were objectively and subjectively improved as evidenced by their return to almost normal life and activity within their own particular limitations, and 20 were therapeutic failures. As a result of their experience the authors state the criteria of selection of patients for surgical intervention as follows: The ideal candidate is the patient with pure mitral stenosis and beginning symptoms of cardiopulmonary dysfunction such as shortness of breath on exertion. Fatigue out of all proportion to the patient's physical activity is frequently a prodromal or accompanying finding. At the moment the mere presence of a well-defined mitral diastolic murmur without accompanying symptoms is regarded by many as insufficient reason to suggest surgery. There is no doubt in the authors' mind that in the very near future such a course will seem unreasonable. No one today awaits the complications and end results of mechanical deformities such as patent ductus arteriosus or coarctation of the aorta before proceeding to their surgical correction. On the contrary, it is the accepted operative practice to proceed shortly after the diagnosis has been made clear and long before symptoms and signs of irreversible damage have supervened. Surgery for mitral stenosis at such an early stage would carry an infinitely lower mortality than it does today, and much cardiac disability might be obviated.

Kentucky State Medical Assn. Journal, Bowling Green

51:45-84 (Feb.) 1953

General Practitioner Sees Hypertensive Patient. J. M. Bush.—p. 45.
Rural General Practice, 1952. G. F. Bond.—p. 49.
Practical Aspects of Treatment of Purulent Meningitis in Children. R. N. McLeod.—p. 52.
Our Geriatric Problem. C. W. Norvell.—p. 56.
Urinary Stress Incontinence in Women. R. Lich Jr. and J. E. Maurer. —p. 59.
Traumatic Diaphragmatic Hernia with Acute Intestinal Obstruction: Report of Three Cases. J. B. Holloway.—p. 62.

Mental Hygiene, Albany, N. Y.

37:1-176 (Jan.) 1953. **Partial Index**

Psychiatry for Everyman in His Everyday Life. I. Galdston.—p. 1.
Developments in Research on Dementia Praecox. W. Malamud.—p. 14.
Training in Psychiatric Disciplines. G. S. Stevenson.—p. 22.
Education of the Public—A Function of Public Psychiatric Hospital. W. E. Barton.—p. 36.
An In-Service Training Project in Mental Hygiene: How Can a Social Worker Assist Public-Health Nurses in Mental-Hygiene Program? C. H. Gundry, T. G. Hunter and H. Itzkow.—p. 47.
Orientation of Staff in Home for the Aged. A. I. Goldfarb.—p. 76.
Sleep Function and Sleep Disturbances. G. Magnussen.—p. 89.

Metabolism, New York

2:1-102 (Jan.) 1953

*Role of Vitamins in Antibody Production (A Summation of the Author's Work to Date). A. E. Axelrod.—p. 1.
Metabolic, Nutritional and Endocrine Studies of Hereditary Obesity-Diabetes Syndrome of Mice and Mechanism of Its Development. J. Mayer, R. E. Russell, M. W. Bates and M. M. Dickie.—p. 9.
Studies in Disorders of Muscle: X. Site of Creatine Synthesis in the Human. A. A. Sandberg, H. H. Hecht and F. H. Tyler.—p. 22.
Nature and Formation of Thoracic Duct Chyle. J. P. Peters and E. B. Man.—p. 30.
Excretion of Ammonium in Cases of Acute Tubular Necrosis with Acidosis and Alkaline Urine. H. L. de Oliveira.—p. 36.
Influence of Stress on Plasma Cholesterol Levels. G. V. Mann and H. S. White.—p. 47.
Protective Effect of Liver Residue on Immature Rats Fed Cortisone Acetate. B. H. Ershoff.—p. 59.
Acetate Utilization in the Dog. P. V. Harper Jr., W. B. Neal Jr. and G. R. Hlavacek.—p. 62.
Lipid Synthesis and Transport in the Dog. P. V. Harper Jr., W. B. Neal Jr. and G. R. Hlavacek.—p. 69.
Clinical Discussion: Use and Abuse of Thyroid Hormone Therapy. M. Perlmutter.—p. 81.

Vitamins in Antibody Production.—To ascertain the interrelationships between the components of the diet and resistance or susceptibility to infection, the author designed animal experiments to study antibody formation in specific vitamin deficiencies. The weanling albino rat of the Sprague-Dawley strain was employed throughout. Deficiencies in the following vitamins were produced: pyridoxine, pantothenic acid, riboflavin, thiamine, vitamin A, biotin, pteroylglutamic acid, niacintryptophane, vitamin D, and vitamin B_{12}. The animal experiments indicated that certain B vitamins, notably pyridoxine, pantothenic acid and pteroylglutamic acid, play a significant role in antibody synthesis. There is considerable basis for linking pyridoxine to amino acid metabolism, and its participation in antibody production may be related to this function. A corresponding mechanism for the action of pantothenic acid has not yet been demonstrated. A relationship between pantothenic acid and peptide bond formation is suggested by the observation of Chantrenne that coenzyme A, a compound that contains pantothenic acid, is involved in the synthesis of hippuric acid. The ability to control antibody production by regulating the vitamin intake should be a useful tool in the unraveling of the mechanisms of antibody synthesis. Since the antibodies represent a class of specialized proteins, such studies would yield information regarding the processes of protein anabolism in general.

Minnesota Medicine, St. Paul

36:97-200 (Feb.) 1953

Inside the British Health Plan. J. R. Fox.—p. 125.
Hemolytic Anemia. P. S. Hagen.—p. 128.
Danger of Ammonium Chloride Acidosis: Report of Case. J. Myhre. —p. 133.
Friedlander's Pneumonia. J. P. Dahlstet.—p. 135.
Responsibility of the Practicing Physician and Health Department in Care of the Aged. R. N. Barr.—p. 137.
Use of Hydrocortisone Acetate (Compound F Acetate) in Treatment of Posttraumatic Bursitis of Knee and Elbow. E. D. Henderson and C. C. Henderson.—p. 142.
Senile Nodular Thyropathy. H. H. Joffe.—p. 145.
Physical Symptoms of Depression. W. S. Chalgren.—p. 148.
Herpes Zoster with Motor Paralysis. T. P. Blanshard.—p. 152.
Perforated Interventricular Septum: Report of Case. D. V. Sharp. —p. 153.
Sulfobromophthalein Test of Liver Function. C. A. Owen Jr.—p. 155.

New England Journal of Medicine, Boston

248:125-164 (Jan. 22) 1953

*Short-Term Continuous Transperitoneal Dialysis: Simplified Technic M. Legrain and J. P. Merrill.—p. 125.
*Transduodenal Sphincterotomy for Chronic Relapsing Pancreatitis. J. W Major and E. J. Ottenheimer.—p. 130.
Current Judgments on Metabolic Control and Complications in Diabetes F. M. Allen.—p. 133.
Urinary-Tract Infections in Diabetic Women. D. M. Barnard, R. D. Story and H. F. Root.—p. 136.
General Practice, Today and Tomorrow. J. S. Collings and D. M. Clark. —p. 141.
Urticaria Due to Drugs of Digitalis Series. L. S. Wolfe and A. J. Geiger. —p. 148.
*Necessity for Adding Albumin to Serum in Crossmatching. M. Grove-Rasmussen and L. Soutter.—p. 149.

Short-Term Continuous Transperitoneal Dialysis.—By means of peritoneal irrigation with fluids of suitable composition, it is possible to remove excess nitrogenous waste products, electrolytes, and fluids from the body. The chief indications for the technique are acute or chronic renal insufficiency. In chronic edema due to congestive heart failure or nephrotic syndrome it is also possible to remove large amounts of sodium chloride and water, but the clinical significance of dialysis in these cases is still undetermined. The authors describe the use of continuous peritoneal irrigation for short periods, usually less than 15 hours, in three patients with acute renal insufficiency, the nephrotic syndrome, and congestive heart failure associated with hyperkalemia, respectively. The materials required can be obtained in any hospital where major surgical procedures are performed. They consist of flasks of fluid for intravenous administration; an ordinary intravenous infusion set; a paracentesis set containing a trocar with two stylets, of which one should be sharp, preferably 15 to 20 cm. in length, with an outside diameter of 2.5 mm., and the other blunt (for this the ordinary perforated hollow stylet in the routine paracentesis set may be employed); and two plastic catheters, 30 cm. in length, with an external diameter that will permit them to be inserted through the trocar. Catheters of polyvinyl chloride, which can be auto-

claved, may be hardened to the desired stiffness by immersion in liquid petrolatum that has been heated almost to the boiling point (350 F). Two plastic or metal adapters serve to connect the plastic catheters with the intravenous-infusion apparatus. The composition of the fluid to be used depends on whether the dialysis is employed in renal insufficiency or in chronic edema. The composition of irrigating fluids for both these purposes is listed. To each liter of fluid, regardless of its composition, 100,000 units of penicillin, 50 mg. of streptomycin, and 5 mg. of heparin should be added. The patient should be prepared with sedatives; and an enema may be helpful to reduce distension. He should be flat on his back. Areas about the MacBurney point on the right and the corresponding point on the left are infiltrated with 1 or 2% procaine. It is advisable to place the first catheter on the left side to avoid injuring the relatively immobile cecum. Since approximately 2 liters of fluid is allowed to distend the abdomen before insertion of the trocar on the right side, this risk is subsequently obviated. After describing the further details of the introduction of the catheters, of the regulation of the flow and of the duration of the dialysis, the authors discuss the difficulties and complications. Contraindications to the method include recent laparotomy and infection of the peritoneal cavity. After briefly reporting the three cases in which the method was used, the authors stress that this method of dialysis appears to have the advantage of simplicity and seemingly involves little risk. It may be a useful adjunct to treatment when conservative methods have not proved adequate, particularly in acute spontaneous potassium intoxication.

Transduodenal Sphincterotomy for Relapsing Pancreatitis.—This paper presents observations on 23 patients with relapsing pancreatitis, of whom 20 were women. Transduodenal sphincterotomy was performed in all cases. This avoids the danger of forcing an instrument blindly through a tight sphincter, and affords an opportunity to visualize any disease at the ampulla. The operation should not be done during an acute attack. The gallbladder should be removed if the sphincter is to be cut. The best exposure of the sphincter is obtained by passing a large Bakes dilator through the common duct to the sphincter and curving it so that the dilator tents the anterior duodenal wall. An incision of 1 cm. or less is made through the duodenal wall over the dilator. A stay suture is placed posteriorly in the sphincter to prevent retraction, and the sphincter is divided anteriorly over the dilator for about 1 cm.; the dilator is withdrawn a short distance, and a probe is passed into the pancreatic duct to verify the existence of a common channel. A T tube is then inserted and left in place for about six weeks to prevent contracture during healing. The authors stress that repeated attacks of pancreatic edema or mild pancreatic necrosis constitute the syndrome of relapsing pancreatitis, which is often mistaken for gallbladder disease, which nearly always accompanies it. Twelve of the reported 23 patients had gallstones, and seven had had a previous cholecystectomy for stones. The diagnosis of pancreatitis can often be made by the clinical history alone. It can be verified by clinical signs and laboratory tests, particularly the detection of an elevated serum amylase content. Transection of the sphincter is a rational, physiological and effective method of treatment.

Necessity of Adding Albumin to Serum in Crossmatching.—When the "serum method" of crossmatching was first described, it was stated, "This method has not failed to demonstrate high-titered 'albumin-active' anti-Rh in a serum regardless of the presence of prozone, when ordinary Rh-positive bloods were used." Recently, however, in work with the serum of a person highly sensitized to the Rh factor, the "serum method" of crossmatching failed to disclose incompatibility with Rh-positive blood. The blood was from a group A, Rh-negative woman whose serum was found to contain Rh antibodies (anti-D) by a routine screening procedure. She was restimulated with small injections of Rh (D)-positive blood for the purpose of producing Rh-testing serum. With this procedure, a high titer, 1:4096, of "albumin active" Rh-antibodies (anti-D) developed, and a prozone was present in the serum. Crossmatching experiments carried out with this serum, failed in most cases to reveal any incompatibility between the serum and group A Rh (D)-positive cells. Since Diamond and Denton, in 1945, introduced albumin as a medium capable of bringing out Rh agglutination in cases in which "incomplete" or "hyperimmune" antibodies were involved, experiments were carried out to determine whether the addition of bovine albumin to the crossmatchings done by the "serum method" before the test tubes were centrifuged would enhance the agglutination sufficiently to reveal the incompatibility between the serum under investigation and Group A Rh (D)-positive cells. Three types of bovine albumin were used in these tests. A table presents the results of the crossmatching experiments between this serum and the group A Rh (D)-positive cells of 10 different persons. The cells of 2 group A Rh (D)-negative persons were used as controls. The "serum method" failed to reveal the incompatibility in 7 out of 10 cases and gave weak reactions in the other 3. The addition of 2 drops of 20% bovine albumin before centrifugation revealed incompatibility in five cases but five others were still missed. The addition of 2 drops of 30% bovine albumin demonstrated the incompatibility in all 10 cases. The authors describe a technique for the serum albumin method. Neither the "serum method" nor the "serum albumin method" of crossmatching can be relied upon for disclosure of incompatibility due to the anti-K, anti-Fy^a or anti-JK^a antibodies. The Coombs' test is still the only reliable means of demonstrating the presence of these antibodies. This is also true for Rh-incompatibility in cases in which the D factor is involved. Since adopting the serum-albumin technique, the authors found another anti-Rh serum of high titer in which a prozone was present. This serum contained "incomplete" anti-D antibodies in a titer of 1:1024. When crossmatching experiments were carried out with this serum and Rh (D)-positive cells using the "serum method" and "serum albumin method," it was found that the former method failed to reveal the incompatibility in half the tested cases whereas the latter revealed the incompatibility in all. The "serum" crossmatching method should be replaced with the "serum albumin" crossmatching technique.

Northwest Medicine, Seattle

52:1-84 (Jan.) 1953

Present Status of Exfoliative Cytology. C. P. Larson and C. C. Reberger.—p. 22.
Saddle Block Analgesia. B. C. Budge.—p. 24.
"Man Without a Conscience." R. C. Murphy Jr.—p. 27.

Virginia Medical Monthly, Richmond

80:1-66 (Jan.) 1953

Emergency Room Surgery and Physician in General Practice. C. B. Morton.—p. 3.
Surgical Treatment of Peptic Ulcer. D. B. Corcoran.—p. 7.
*Relationship of Thyroid Nodules to Carcinoma. C. Williams Jr.—p. 16.
Manifestations of Extrinsic Pressure on Intestines by Distended Urinary Bladder. (2 Case Reports). H. Goodman.—p. 20.
Use of Myanesin (Tolserol) in Black Widow Spider Bite. M. Ende and W. Youngblood.—p. 24.
Stevens-Johnson Syndrome: Report of Case Treated with Aureomycin. J. F. Wine, S. G. Page Jr. and R. C. Manson.—p. 26.

Relationship of Thyroid Nodules to Carcinoma.—Williams summarizes the present status of knowledge of the relationship of thyroid nodules to carcinoma on the basis of reports by several large clinics. He finds that the incidence of malignancy in nontoxic nodular goiters treated surgically is about 10%, while it approaches 20% when only solitary nodules are considered. Preoperative diagnosis by palpation of solitary nodules and by consideration of the age of the patient and the size of the lump is not entirely satisfactory. The mortality and morbidity from surgical removal of thyroid nodules are extremely low; hence thyroidectomy for cancer prophylaxis is recommended in all single adenomas and in multinodular goiters where uncertainty exists. Since the incidence of unsuspected malignancy in nodules of the breast and thyroid treated surgically is approximately the same, a plea is made for early surgical removal of these nodules as a means toward earlier diagnosis and treatment of thyroid cancer.

FOREIGN

Acta Tuberculosea Scandinavica, Copenhagen

27:157-352 (No. 3-5) 1952. **Partial Index**

*Para-Aminosalicylic Acid (PAS) and Streptomycin in Pulmonary Tuberculosis: Comparison of 84 Patients Treated with para-Aminosalicylic Acid and 82 Treated with Streptomycin by the Therapeutic Trials Committee of the Swedish National Association Against Tuberculosis.—p. 157.
Studies on Concentration of Streptomycin in Treatment of Bone and Joint Tuberculosis. M. Felländer, T. Hiertonn and G. Wallmark.—p. 176.
Technique, Results of and Indications for Treatment of Pulmonary Tuberculosis by Short Intravenous Transfusion of para-Aminosalicylic Acid. G. Favez, A. Bossy, G. Dittrich and others.—p. 190.
Fate of Streptomycin Introduced by Intratracheal Route into Pulmonary Alveoli. C. Grassi.—p. 207.
Toxic Effects of Streptomycin and Dihydrostreptomycin in Pregnancy, Illustrated Experimentally. N. Riskaer, E. Christensen and H. Hertz.—p. 211.
*Boeck's Disease (or Sarcoid) and Tubercle Bacillus. O. Refvem.—p. 314.

Para-Aminosalicylic Acid and Streptomycin in Pulmonary Tuberculosis.—Of 166 patients with active pulmonary tuberculosis selected for a comparative therapeutic study by the therapeutic trials committee of the Swedish National Association against tuberculosis, 84 were treated with *p*-aminosalicylic acid and 82 were treated with streptomycin. Treatment with 10 gm. of *p*-aminosalicylic acid daily or 1 gm. of streptomycin daily was continued for three months in 85% of the patients. Temperature, erythrocyte sedimentation rate, body weight, differential blood count, and content of acid-fast bacilli in smears of sputum were analyzed at regular intervals during the therapeutic trial period. Pulmonary roentgenograms were taken every month. The efficacy of *p*-aminosalicylic acid and of streptomycin showed a good agreement in all respects except gain in weight; the patients treated with streptomycin showed a more rapid gain in body weight than the patients treated with *p*-aminosalicylic acid. Mild to moderate side-effects of the chemotherapy were common in both groups of patients. Chemotherapy had to be discontinued due to undesirable side-effects in eight patients treated with streptomycin and in three patients treated with *p*-aminosalicylic acid. As a result of their experience with these 166 patients the members of the therapeutic trial committee recommend that *p*-aminosalicylic acid should be given in cases where a moderate effect is wanted for a rather long time, whereas streptomycin should be limited to treatment for shorter periods in more acute cases. In subchronic cases with an acute progressive course of a more alarming type, simultaneous administration of the two drugs seems to be worth trying.

Boeck's Sarcoid and the Tubercle Bacillus.—As a result of his review of the literature, Refvem states that the concept that Boeck's sarcoid is caused by Mycobacterium tuberculosis is not supported by any conclusive evidence. On the contrary, many observations that have been cited to support the tuberculous etiology of the disease can be satisfactorily explained in other ways. Possibly it would be advisable to classify the rare tubercular instances of Boeck's sarcoid as symptomatic, like leprous sarcoid. The occurrence of generalized Boeck's sarcoid in a 52-year-old woman is reported. The reaction of the patient to tuberculin had been negative for the follow-up period of 18 years. Fifteen and a half weeks after inoculation of 0.10 mg. BCG (double the amount of the usual therapeutic dose), a sudden severe reaction manifested by redness, tenderness and an infiltration approximately the size of a child's hand occurred at the site of the BCG injection, resulting in necrosis of the skin and ulceration. At the same time a slight and transitory sensitivity to tuberculin was noted. This course indicates a delayed reaction to Myco. tuberculosis. The theory is advanced that this delayed reaction may be the cause of poor prognosis of tuberculosis in patients with Boeck's sarcoid. This concept is supported by Hill's "speed of reaction" hypothesis. The infiltration at the site of the BCG injection receded gradually and spontaneously and healing resulted within five to six weeks. The sarcoid lesions in the skin were unaltered throughout the whole period. This observation shows that even attenuated tubercle bacilli (BCG) may live for four to five months in the skin of patients with Boeck's sarcoid. Therefore, no general conclusions can be drawn from Kyrle's contradictory observations. The practical consequence must be that tuberculin-negative as well as tuberculin-positive patients with sarcoidosis should be carefully protected against exposure to exogenous infection by tubercle bacilli. It must be regarded as hazardous to treat these patients in tuberculosis sanatoriums.

Archiv für Kreislaufforschung, Darmstadt

18:323-432 (Dec.) 1952. **Partial Index**

Variation in Pulse Time Scatter in Carotid Pressure Experiment in Patients with Disturbances in Sympathetic-Endocrine Regulation. H. Jordan.—p. 344.
*Hormonal Cause of Cardiac Hypertrophy. A. von Metzler.—p. 359.
Testing Capillary Permeability and Resistance in Diagnosis and Evaluating Therapeutic Effects in Internal Diseases. H. Küchmeister.—p. 395.

Hormonal Cause of Cardiac Hypertrophy.—In two species of animals, guinea pigs and rats, von Metzler induced cardiac hypertrophy either by physical exertion or by producing stenosis of the aorta. The cardiac enlargement was always accompanied by hypertrophy of the adrenals. This seemed to indicate a relationship between increased cardiac function and the functional activity of the adrenals. In view of the close interrelation of the endocrine glands, particularly the close connection between anterior hypophysis and adrenal cortex on the one hand, and of adrenal cortex and gonads on the other hand, von Metzler investigated the influence of the hormones of the adrenal cortex, the gonadal hormones, and finally the hormones of the anterior pituitary on cardiac hypertrophy. Surveying the results of his numerous experiments, he feels that the question whether the increased functional activity of the heart during exertion causes the hypertrophy, or whether there are other contributory factors, such as hormonal influences, must be answered in the following manner. The effect of the increased functional load stimulates the growth of the heart muscle cells. This opinion of the older clinicians has been corroborated in the described animal experiments. Of the various hormones investigated with regard to their influence on cardiac hypertrophy, the hormones of the adrenal cortex appeared of greatest importance. It appeared that various exertions produced cardiac hypertrophy not directly but indirectly by way of the endocrine apparatus, particularly the adrenal cortex. However, the final effect of the adrenal cortex apparently is determined by the type of steroids that are secreted, for they include some that influence the weight of the heart antagonistically, and their effect may vary, depending on the reactivity of the organism.

Archives of Disease in Childhood, London

27:507-592 (Dec.) 1952

Two Cases of Cytomegalic Inclusion Encephalitis. A. M. G. Campbell, J. Guy and W. G. Walter.—p. 507.
Familial Haemophagocytic Reticulosis. J. W. Farquhar and A. E. Claireaux.—p. 519.
*Comparative Efficiency of Various Techniques for Diagnosis of Threadworm Infection. J. M. Watson and R. Mac Keith.—p. 526.
*Gastric Cysts of Mediastinum with Report of Two Cases. A. Matheson, G. Cruickshank and W. J. Matheson.—p. 533.
Total Drainage of Pulmonary Veins into Right Atrium. S. T. Winter, E. N. Ehrenfeld and J. Feldman.—p. 539.
Incidence and Nature of Intracranial Calcifications After Tuberculous Meningitis. J. Lorber.—p. 542.
Fatigue Fracture of Fibula in Childhood. A. L. Griffiths.—p. 552.
Degenerative Changes in Left Lobe of Liver in Newborn. J. L. Emery.—p. 558.
Vomiting of Uncertain Origin in Young Infants. B. S. B. Wood and R. Astley.—p. 562.
Growth, Health and Food of Single Infant. N. B. Bransby and E. R. Bransby.—p. 569.
Pneumothorax and Pulmonary Interstitial Emphysema in Newborn. N. E. France, I. Gordon and F. M. Humphries.—p. 572.
An Unusual Case of Neonatal Uraemia. W. A. B. Campbell and J. S. Dales.—p. 580.
Sexual Precocity in Boy After Measles Encephalomyelitis. J. Apley.—p. 584.

Diagnosis of Threadworm Infection.—When infection by threadworms is suspected, it is essential before starting treatment to confirm the diagnosis by recovering ova of the parasite from the perianal skin. This report is concerned with the comparative efficiency of six different techniques recommended for the recovery of the ova of Enterobius vermicularis: the NIH (National Institutes of Health) swab, the TP (toilet paper) swab, the adhesive cellophane swab, the glass pestle, the direct slide,

and the brush. The authors gained the impression that the adhesive cellophane swab alone is reliable whether the eggs have been wetted or not and is the only one that fulfils all the requirements of a clinically satisfactory device. It should be replaced by one of the other devices when the patient is an adult male with abundant perianal hair. The TP swab is the method of choice when ointment has been applied to the perianal skin, since any ova embedded therein are revealed by examination with dark-ground illumination.

Gastric Cysts of Mediastinum.—The occurrence of an intrathoracic cyst lined with gastric mucosa is a rarity, only 31 cases having been previously reported. Their recognition, however, is important since early surgical removal is curative. If unrecognized and producing symptoms, they usually cause death in infancy. The authors describe two such cases, the first in a boy of 9 weeks. He had recurrent attacks of hemoptysis, and died about five weeks later. At necropsy abnormalities were confined to the right lung. A cyst 1½ in. (3.8 cm.) in diameter was attached to the dorsal segment of the right lower lobe. This cyst, which was adherent on its posterior aspect to the parietal pleura, presented a lining of mucosa resembling that of the stomach and communicated with a cavity in the adjacent lung through a channel also lined with mucosa. The surrounding lung was collapsed and showed acute purulent infection. Clotted blood filled the cavity in the lung; there was a small amount in the cyst. The second child, a boy of 3 months, had hemoptysis and signs of pulmonary infection. The chest was opened through the bed of the resected sixth left rib. The lung was extensively adherent. A cystic structure was found lying in the interlobar fissure. The lining of the cyst appeared to be of mucous membrane. In its base, and communicating with the lung, was a punched-out hole having the appearance of a peptic ulcer. The cyst was removed by sharp dissection. Further inspection of the pleural cavity revealed a second cyst lying in the paravertebral gutter at the level of the sixth rib, but, owing to the baby's poor general condition, it was considered prudent to leave this cyst for removal at a subsequent operation, which was carried out about three weeks later. The results of the examination of the first surgical specimen were consistent with that of an inflamed necrosing gastric mucosa. The specimen from the second operation proved to be a gastric cyst on microscopic examination. The authors say that a number of hypotheses have been advanced to explain the origin of intrathoracic gastric cysts. They regard as the most likely explanation, that they arise from a bud pinched off from the embryonic foregut.

Arquivos de Neuro-Psiquatria, São Paulo

10:407-516 (Dec.) 1952

Occipito-Cervical Malformations. H. M. Canelas, J. Zaclis and R. E. Tenuto.—p. 407.
Pathogenesis of Tuberculous Lesions of Nervous System. M. M. Zamora. —p. 477.

Tuberculosis of Nervous System.—Tuberculosis was found in 607 of 1,000 patients on whom necropsies were performed in the department of pathological anatomy of the Faculty of Medicine of La Paz, Bolivia, from 1940 to 1950. In 65 of these patients there was involvement of the nervous system. The commonest site of involvement associated with tuberculosis of the nervous system was the hilar lymph node tissue. The tuberculous lesions observed in the nervous system were tuberculous meningitis in 40 cases, tuberculoma of the brain in 21, and tuberculoma of the cerebellum in four cases. Among the cases of tuberculous meningitis, miliary tuberculosis was present in 14 cases (35%) and caseation of the hilar lymph nodes in 16 cases (40%). The greatest incidence of tuberculosis of the nervous system was observed in patients between the ages of 10 and 19 years. The author believes, on the basis of his observations, that the location of the disease in certain structures favors diffusion of tuberculosis to the nervous system. Caseation of the lymph nodes of the hilus of the lung facilitates diffusion of tuberculosis to the brain and meninges through the blood stream and/or the lymphatics, because of the proximity of these structures to large blood vessels and lymphatic channels.

British Journal of Dermatology, London

64:431-502 (Dec.) 1952

Observations on Use of Ammi Majus Linn. in Vitiligo. Abdel-Moneim El-Mofty.—p. 431.
Treatment of Essential Hyperidrosis with Hexamethonium Bromide: Preliminary Report. J. Sommerville and J. B. Macmillan.—p. 442.
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British Journal of Ophthalmology

37:1-64 (Jan.) 1953. **Partial Index**

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Experimental Thiamin Deficiency as Cause of Degeneration in Visual Pathway of Rat. F. C. Rodger.—p. 11.
Control of Experimental Corneal Infection with Medicated Semi-Solid Contact Cap and Disk: Infection with Ps. Pyocyanea Treated with Streptomycin. M. Klein and E. G. Millwood.—p. 30.
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Exudation and Absorption Mechanisms of Normal Conjunctival Capillaries. K. H. Go.—p. 50.
Influence of Third Cranial Nerve on Intra-Ocular Pressure. D. P. Greaves and E. S. Perkins.—p. 54.

British Journal of Surgery, Bristol

40:193-292 (Nov.) 1952

Haemodynamics of Surgical Patient Under General Anaesthesia. R. Shackman, G. I. Graber and D. G. Melrose.—p. 193.
Diagnosis of Intestinal Obstruction in the Newborn. A. Jolleys.—p. 201.
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Late Results of Compound Fractures of Tibia in Battle Casualties Treated in Penicillin Unit. M. E. Florey, J. S. Jeffrey, R. W. N. L. Ross and E. C. Turton.—p. 274.

British Journal of Venereal Diseases, London

28:159-218 (Dec.) 1952

Changing Concepts in Sero-Diagnosis of Syphilis: Specific Treponemal Antibody Versus Wassermann Reagin. R. A. Nelson Jr.—p. 160.
Plurality of Antibodies in Syphilitic Serum and Clinical Practice. V. Puccinelli.—p. 184.
*Results of Treatment of Gonorrhoea with Penicillin Alone and with Penicillin and Sulphonamide. G. O. Horne, J. B. Bittiner and J. R. G. Buchanan.—p. 189.
Incidence and Demonstration of Biologic Reactions in Routine Wassermann Tests. H. M. Rice.—p. 197.
Management of Vesical Dysfunction of Neurosyphilis by Transurethral Resection of the Vesical Neck. W. Fowler.—p. 201.
Herpetic Urethritis. J. Esteves and M. R. Pinto.—p. 205.
Acute Gonorrhoea Due to Streptomycin-Resistant Gonococcus. W. J. Ryan,—p. 209.

Penicillin and Sulfonamide in Gonorrhea.—Patients with uncomplicated gonorrhea treated in a clinic in Leeds from January, 1950, to December, 1951, were analyzed. The group included 321 men with 349 infections and 135 women with 143 infections. Reasons are given why in most of the cases of recurrence, reinfection rather than treatment failure was considered to have been the cause. In the male patients a single injection of 300,000 units of procaine penicillin in aqueous suspension (in some cases together with 100,000 units of crystalline penicillin G) was used. Some patients were also given 20 gm. of sulfonamide in five days. In the women either a single injection of 300,000 units of procaine penicillin with 20 gm. of sulfonamide, or 300,000 units of procaine penicillin with 100,000 units of crystalline penicillin G alone, was used. The treatment failure rate was 2.2% in the male series and 2.9% in the female series. In the male patients there was no

evidence that the addition of sulfonamide reduced the treatment failure rate, although there was some evidence that it did reduce the incidence of nongonococcal urethritis persisting after successful treatment of the gonorrhea. There was insufficient evidence to show whether the additional 100,000 units crystalline penicillin G had any effect in reducing the treatment failure rate. In the female patients the number receiving penicillin alone was insufficient to justify definite conclusions, but the treatment schedule using 300,000 units of procaine penicillin with 100,000 units of crystalline penicillin G alone appeared to give satisfactory results. No evidence was obtained of the penicillin having a "masking" effect on syphilis. It is stressed that, in spite of the apparent simplicity of treatment, it is still important to establish a clinical and bacteriological diagnosis before treatment is started.

British Medical Journal, London

1:173-232 (Jan. 24) 1953

Phenomena of Epilepsy. D. Williams.—p. 173.
Acute Disseminated Encephalomyelitis Treated with A.C.T.H. H. G. Miller.—p. 177.
Anuria Treated by Cortisone. H. Moore and D. K. O'Donovan.—p. 183.
N,N'-Dibenzylethylenediamine Penicillin: New Repository Form of Penicillin. A. P. Fletcher and C. R. Knappett.—p. 188.
Clinical Trial of T.B.3 in Surgical Tuberculosis. J. H. Mayer and P. G. Laing.—p. 189.
*Tuberculous Meningitis Treated with Streptomycin: Four-Year Follow-Up. S. J. M. Russell and P. MacArthur.—p. 192.
*Use of Succinylcholine in E.C.T. with Particular Reference to Its Effect on Blood Pressure. D. J. Adderley and M. Hamilton.—p. 195.
Canicola Fever: Human Case in Northern Ireland. C. C. Kennedy, T. H. Crozier and A. C. Houston.—p. 197.
Two Examples of -D-/-D- Genotype in an American Family. R. K. Waller, R. Sanger and O. B. Bobbitt.—p. 198.

Tuberculous Meningitis Treated with Streptomycin.—Follow-up of 33 children with tuberculous meningitis treated with streptomycin at the Royal Hospital for Sick Children in Glasgow 4 to 5½ years after the institution of treatment shows that 9 of the 12 survivors are well and leading normal lives in their own homes, while three are grossly disabled. These results might have been better except for the fact that the best method of using streptomycin was still unknown when the treatment was given. The disease was in its early stages when treatment was started in three of the well survivors, and in an intermediate stage in the other six. The cerebrospinal fluid was examined and found cytologically and chemically normal in 11 of the children, but its sugar content was ominously low in one of these (who is disabled). Seven of the well children are making good progress at school and do not exhibit any behavior problems; one is mentally backward but affectionate and happy in disposition; and one is probably of low average intelligence. Meningitis recurred in nine patients: one recovered and is well, two are disabled, and six died of the relapse. Intracranial calcification was detected in the roentgenograms of 8 of the 12 survivors, and in those of 2 who died of relapses; in each case, calcified areas were found near the sella turcica. Intrathoracic calcification has occurred in 7 of the 10 children with intracranial calcification. The finding of intracranial calcification supports the belief that meningitis is commonly secondary to cortical or meningeal tuberculomas. It does not always indicate healing of the meningitis; tuberculous foci containing live tubercle bacilli have been found in patients showing extensive intracranial calcification.

Succinylcholine in Electric Convulsion Therapy.—Electric convulsion therapy can be more widely applied now that it is possible to weaken the muscular spasms of the shock by the use of curare-like substances. Contraindications to convulsion therapy are to be found in the effects of the convulsion itself, which may injure the bones, for instance, or exacerbate tuberculous lesions in the lung, and in the strain it imposes on the cardiovascular system, especially when incipient heart failure and hypertension are present. The incidence of depression, for which convulsion therapy is usually given, increases with advancing age, and this makes hypertension the chief contraindication because the treatment produces a rise in the blood pressure. The use of relaxants in electric shock therapy has been recommended because it reduces the strain on the heart produced by the convulsion, and the presence of hypertension has been regarded as an indication for their use. The changes in blood pressure occurring in electric shock therapy when relaxants are used have now for the first time been investigated and the results are reported. The patients were all women and most were elderly, feeble, and hypertensive. The relaxant used was succinylcholine ("scoline"), which is fast-acting; 1.5 ml. of a 5% solution produced complete relaxation in these patients. Unconsciousness was induced by injection of 0.2 gm. of thiopental sodium. The blood pressure was taken immediately before the injection of thiopental sodium, one minute after that injection, again after the injection of succinylcholine had become effective, and immediately after the convulsion. The results almost always showed an unexpected rise in the blood pressure after the injection of succinylcholine. Investigation proved that the rise was due to the succinylcholine and not to any other factor, and that it could be prevented by the use of ganglion-blocking agents (tetraethylammonium bromide and hexamethonium iodide). Succinylcholine can be used to abolish the convulsion completely, thus eliminating all strain on the cardiovascular system from that source. Recovery after a full dose is just as rapid as it is after a small one. The difficulty of determining whether an adequate convulsive shock has been given when relaxation is complete can be overcome by placing a tourniquet or sphygmomanometer cuff around the arm opposite the one used for the succinylcholine injection just before that injection is given; if compression of the artery is maintained until the current is passed, the effects of the shock will be observed in that arm only and there will be no doubt as to the adequacy of the dose.

Canadian Medical Association Journal, Montreal

68:95-204 (Feb.) 1953

Current Status of Treatment of Coronary Heart Disease. C. K. Friedberg.—p. 95.
Potency of Vitamin Products. J. A. Campbell.—p. 103.
Role of Immunization Procedures in Precipitation of Paralytic Poliomyelitis. A. J. Rhodes.—p. 107.
Problem of Drug Addiction. C. A. Roberts.—p. 112.
Technique and Use of the Bone Bank. A. J. Kergin.—p. 115.
Comparative Use of Silver Nitrate and Penicillin in Eyes of Newborn. H. Mallek, P. Spohn and J. Mallek.—p. 117.
Present Day Trends in Regulations Governing Admission to Psychiatric Hospitals. R. R. MacLean.—p. 119.
Simple Measures in Prevention and Treatment of Asphyxia Neonatorum. G. F. Gibberd.—p. 121.
Studies of Aqueous Exudate in Uveitis. R. G. Murray.—p. 124.
Early Diagnosis and Treatment of Breast Tumours. J. W. R. Rennie.—p. 127.
Polypi of the Colon and Rectum. J. L. Petitclerc.—p. 130.
Radioiodine^{131} in Diagnosis of Thyroid Function. M. W. Johns, J. H. Gregson, G. C. Foster and others.—p. 132.
Piromen Treatment of Varied Dermatoses. L. R. McCorriston.—p. 137.
Succinylcholine—A Short-Acting Relaxant. H. T. Davenport and A. W. McDonald.—p. 140.
Torulosis of Central Nervous System. S. J. Holmes and G. H. Hawks.—p. 143.
Complications Observed During ACTH and Cortisone Therapy. J. R. Martin and C. J. Pattee.—p. 146.
Carcinoma of Ampulla of Vater. J. B. Osbaldeston.—p. 152.
Ectopic Kidney with Nephrolithiasis and Pyelonephritis. H. Linton.—p 155.

Hoja Tisiológica, Montevideo

12:341-456 (Dec.) 1952. **Partial Index**

Incidence of Tuberculosis Among Cohabitants of Patients According to Type of Bacilloscopy. R. Racine.—p. 355.
*Diagnosis of Early Bronchogenic Carcinoma: Analysis of 151 Cases. J. C. Dighiero.—p. 369.
Intraspinal Isoniazide in Large Doses in Tuberculous Meningitis: Preliminary Report of First Case Treated. R. Cetrángolo.—p. 396.

Early Diagnosis of Bronchogenic Carcinoma.—In 12 years, the author has observed 151 cases of bronchogenic carcinoma. He classifies the disease in its early period into two varieties, bronchial and parenchymatous, each of which has characteristic symptoms and requires different techniques for diagnosis. The incidence of bronchial and of parenchymatous cancer is 45% and 55% respectively. Bronchial cancer originates in the mucosa of the tracheobronchial system, up to the site of branching of the segmental bronchi. In the early period its

symptoms are those of pure intrabronchial irritation, namely, persistent cough and expectoration of mucous sputum. The condition of the patient is good. The roentgenograms of the chest are normal. This period is followed by a syndrome of bronchial obstruction with symptoms of acute pulmonary infection and general infection. The roentgenogram of the chest shows pulmonary shadows of segmental topography, which vary according to the site of obstruction. Bronchoscopy is the best method for diagnosis, enabling one to see the lesion and to make a positive diagnosis by means of biopsy in 100% of the cases of cancer. Other techniques previously used for the diagnosis of this type of cancer give indirect and uncertain results. Negative results of bronchoscopy in a patient with pulmonary disease and roentgenograms of the chest showing pulmonary segmental shadows rule out bronchial carcinoma. Parenchymatous carcinoma originates in the mucosa of small bronchial branches and the peripheral bronchi. It grows, without any symptoms, into the parenchyma of the lung. When it reaches a certain size it spreads to the pleura, the large bronchi, and the mediastinum. Eventually it excavates and produces general acute symptoms and peripheral metastases. From the very beginning it can be seen roentgenographically. However, because of the fact that it does not give any symptoms, it is not searched for. It is observed in the early period only when roentgen examination of the population is carried on in the campaign against pulmonary diseases. Exploratory thoracotomy is the only reliable method for obtaining a positive diagnosis in a patient with parenchymatous cancer, which shows in the roentgenogram of the chest as nodular shadows. The other techniques previously used, including bronchoscopy, bronchography, examination of sputum, pleural or pulmonary puncture, and aspiration biopsy, give indirect and uncertain results in the majority of the cases.

Indian Journal of Surgery, Madras

14:279-358 (Dec.) 1952. **Partial Index**

Intramedullary Pinning of Long Bones: Report on 25 Cases of Pinning. B. Mukhopadhaya.—p. 279.
Lateral "Aberrant" Thyroid Tumours: Report of 5 Cases. V. S. Mangalik and K. M. Wahal.—p. 295.
Tuberculous Pericarditis and Its Surgical Management. K. N. Udupa. —p. 315.
Solitary Kidney or Congenital Absence of Kidney. R. C. Khanna.—p. 329.
*Case of Early Volkmann's Ischemia Following Posterior Dislocation of Elbow Treated Successfully by Arterectomy. H. K. Sarkar.—p. 350.

Volkmann's Ischemia Successfully Treated by Arteriectomy.—Sarkar presents the case of a man, aged 42, who had sustained a posterior dislocation of the elbow one hour earlier as the result of a fall. The radial pulse was absent. The dislocation was immediately reduced but the radial pulse did not return. The patient began to complain of severe pain in the forearm. Fingers became cold, cyanosed, and slightly clawed. He could hardly move them, and on passive extension pain was severe. No improvement of circulation was evident even after opening up the antecubital fossa. Thus all the manifestations of early Volkmann's ischemic contracture were present. Two hours after the reduction of the dislocation (three hours after the accident) pain and cyanosis were still present and so the antecubital fossa was explored. No hematoma was found that was under tension and could obstruct the circulation. Opposite the trochlear surface the artery was not pulsating, slightly thickened and bluish in color. Hot packs did not have any effect on the return of pulsation. The segment was cut between ligatures and removed. There was a clot in the artery opposite the contused area blocking the circulation. Next morning the pain was less and finger movements improved. The radial pulse was palpable from the fourth postoperative day. At present the patient is working normally as a mechanic. The author feels that it would have been dangerous to postpone operation in the hope that the circulation would reappear. In this connection he cites Griffith's observations on a series of arteriectomies; complete success was obtained in the cases in which the arteriectomy was done within seven hours, partial success in those operated on within 23 hours, and complete failure in those in which arteriectomy was postponed for more than 24 hours.

Journal of Physiology, London

118:435-594 (Dec.) 1952. **Partial Index**

Circulatory Effects of 5-Hydroxytryptamine. G. Reid.—p. 435.
Comparison of Effects of Anaphylactic Shock and of Chemical Histamine Releasers. J. L. Mongar and H. O. Schild.—p. 461.
Carotid Chemoceptor Impulse Activity During Inhalation of Carbon Monoxide Mixtures. H. N. Duke, J. H. Green and E. Neil.—p. 520.
Effect of Voluntary Overbreathing on Blood Flow Through Human Forearm. R. S. J. Clarke.—p. 537.
Medullary Chemosensitive Receptors. C. von Euler and U. Söderberg. —p. 545.
Vasodilatation in Human Skeletal Muscle During Adrenaline Infusions. R. F. Whelan.—p. 575.

Lancet, London

1:103-152 (Jan. 17) 1953

Future of Medical Research. M. Burnet.—p. 103.
*Late Results of Repair of Large Hernias with Tantalum Mesh. D. M. Douglas.—p. 108.
Clinical Aspects of Toxicity of Polymyxins A, B, and E. P. N. Swift and S. R. M. Bushby.—p. 110.
Analysis of Normal Electro-Encephalogram. N. W. Ellis and S. L. Last. —p. 112.
Blood-Pyruvate Levels in Subacute Combined Degeneration of Cord: Effect of Vitamin B_{12} Therapy. C. J. Earl, M. F. S. El Hawary, R. H. S. Thompson and G. R. Webster.—p. 115.
Congenital Adrenocortical Hyperplasia: Metabolic Study. A. S. Mason and C. J. O. R. Morris.—p. 116.
Paronychia. T. G. Lowden.—p. 118.
Haemorrhagic State Resembling Haemophilia. J. C. F. Poole.—p. 122.
Return of Liver Function Tests to Normal After Relief of Obstruction in Chronic Biliary Cirrhosis. J. E. Richardson.—p. 122.

Late Results of Hernial Repair with Tantalum Mesh.—Thirty-six patients with large recurrent hernias in whom tantalum mesh was used for repair were studied to ascertain the late results. The number included 13 with inguinal, 8 with paraumbilical, and 15 with incisional hernias. Most were large hernias considered unsuitable for repair by other methods. The remainder were recurrent hernias; no primary small hernias were treated with tantalum mesh. One of the patients with a very large recurrent incisional hernia in the right hypochondrium died from bronchopneumonia on the third postoperative day. In the remaining 35 cases there have been 4 late deaths from intercurrent disease. Two patients could not be traced. In the other 29 patients the shortest period since operation was 4 years, and the average 5 years. There have been two recurrences, both in patients with inguinal hernias. There have been no recurrences in paraumbilical or incisional hernias. No wound sinuses developed. The method is of little value in inguinal hernia but may be used with confidence in large incisional and paraumbilical hernias.

Maandschrift voor Kindergeneeskunde, Leyden

20:357-428 (Dec.) 1952. **Partial Index**

*What Can Be Expected from BCG Vaccination? D. Hoogendoorn. —p. 369.
*The Later Prognosis of Those Recovered from Tuberculous Meningoencephalitis. J. Callens and H. Demolder.—p. 376.
Hemangioma with Thrombopenia. A. G. Schoo.—p. 388.
Subarachnoid Hemorrhage Resulting from Prothrombin Deficiency. P. K. De Haas.—p. 397.
Fibroelastosis of Endocardium in an Infant. E. D. A. M. Schretlen and W. Lingbeek.—p. 402.

What Can be Expected from Vaccination with BCG?—The mortality from tuberculosis has decreased rapidly in the Netherlands since the beginning of this century. In 1901 it was 195 per 100,000 population, that is, 10,119 people died of this disease in that year. If the same mortality had prevailed in 1951, a total of 20,000 deaths from tuberculosis would have occurred, but only 1,656 persons died from tuberculosis, that is, the mortality was 16 per 100,000 inhabitants. In 1951 a total of 130 children less than 14 years old died of tuberculosis; for children less than 5 years old the figure was 79. Thus, if vaccination with BCG should be 100% effective, only a comparatively small number of children's lives would be saved and to accomplish this 220,000 children would have to be vaccinated with BCG every year. Furthermore it is estimated that about one of 3,000

vaccinated will die of tuberculosis. The mortality from tuberculosis among children is now much less than that from whooping cough and diphtheria and vaccination against diphtheria would save more lives than BCG vaccination.

Later Fate of Children Recovering from Tuberculosis Meningoencephalitis.—The condition of 56 children who were treated for tuberculous meningitis in 1949 and 1950 was investigated in 1952. The children were subjected to a clinical examination, radiological examination of the cranium, electroencephalographic study, and their intelligence quotient was ascertained. Psychological backwardness was observed in 6 children; deafness in 7; and hemiparesis in 3. Some of the children had several of these defects. In 44 of the children no clinical abnormalities could be found. Radiological examination revealed intracranial calcification in eight children. Opacity of the falx cerebri was observed in 12. Electroencephalographic examination revealed abnormalities in 19 children, but only 5 of these 19 electroencephalographic records showed very great abnormality. The intelligence quotients were between 57 and 136, the average being around 95. The intelligence quotients of a control group of children were between 70 and 171, and the average was 107.

Minerva Medica, Turin

43:1173-1276 (Nov. 29) 1952. **Partial Index**

Problems of Neurosurgery in Children. G. M. Fasiani.—p. 1173.
One Case of Plasma Cell Thyroiditis. P. Sacca Francesco.—p. 1173.
*First Results with Use of Streptokinase and Streptodornase in Hemothorax Secondary to Extrapleural Pneumothorax. V. Miadonna and R. Avallone.—p. 1182.

Streptokinase and Streptodornase After Extrapleural Pneumothorax.—Streptokinase and streptodornase gave good results in 12 patients in whom hemorrhage had occurred a few days after the creation of an extrapleural pneumothorax. In these patients aspiration had already become impossible because of the formation of massive clots; in two of them the clot had been present for two months and the pneumothorax was considered inefficient. The dose of the enzymes was individualized according to the size of the induced cavity and the clots. If a single injection into the blood clot was not sufficient, it was repeated a few days later. The average dose was 50,000 units of streptokinase and 20,000 units of streptodornase. In the first aspiration performed 12 to 48 hours after the injection, a thin, freely flowing fluid was obtained; this diminished in the following tappings until the cavity was dry and the pneumothorax refills could be resumed and continued normally. A pleural reaction with a slight cellular exudate was seen during the first days of the treatment. It is suggested that, since this is the most critical phase of the treatment, clinical and roentgenologic observations should be made often. The refillings should also be more frequent to avoid reduction of the pneumothorax as an effect of this reaction, which, however, is limited to the first few days only. The only side-effect was elevation of the temperature a few hours after the introduction of the enzymes. This was slight and disappeared by lysis in from 24 to 48 hours.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

96:2977-3044 (Nov. 29) 1953. **Partial Index**

Pseudocysts of Pancreas. T. A. Donjersloot.—p. 2981.
Hereditary Deforming Chondrodysplasia in Javanese Patients. T. Botman and G. Beumer.—p. 2986.
Calcification of Mesenterial Lymph Nodes. P. van Eeckhoutte.—p. 2989.
*Treatment of Peritonitis with Corticotropin in Combination with an Antibiotic. K. de Ruiter.—p. 2995.

Corticotropin Combined with an Antibiotic for Peritonitis.—In two cases of peritonitis resulting from perforation of the appendix, the prognosis seemed unfavorable because the general condition was poor. The customary surgical treatment was followed by the administration of corticotropin and oxytetracycline ("terramycin"). The rapid recovery of both patients indicates that the combined administration of corticotropin and a potent antibiotic aimed at colon bacilli and streptococci constitutes considerable progress in the treatment of this form of peritonitis.

Nordisk Medicin, Stockholm

48:1687-1718 (Dec. 5) 1952. **Partial Index**

Contrast Mediums for Urography, Cardiography and Angiography and Their Toxicology. C. Sandström.—p. 1690.
*Chemotherapy in Renal Tuberculosis. A. Blystad, J. Hirsch and O. Maske. —p. 1695.
Electrocardiogram and Potassium Metabolism During Treatment with Corticotropin (ACTH) and Desoxycorticosterone Acetate (DCA). H. Ljunggren, R. Luft and B. Sjögren.—p. 1698.
Morbidity from Rheumatoid Arthritis. F. Ammitzbøll and E. Snorrason. —p. 1701.

Chemotherapy in Renal Tuberculosis.—Of 117 patients with unilateral or bilateral renal tuberculosis 75 were treated with *p*-aminosalicylic acid and streptomycin, in some cases with thiosemicarbazone and thiazol sulfone. The results obtained in 48 cases are discussed in detail. A definite effect was seen in most of the patients during chemotherapy. The subjective symptoms disappeared or abated considerably. Many patients became free of bacilli; urography, cystography and examination of the urine revealed improvement. However, during a post-treatment observation period of from 7 to 18 months the urine of only seven patients remained free of bacilli. In unilateral renal tuberculosis with certain urographic changes nephrectomy or partial resection should be done, with pre and postoperative chemotherapy. If there are no or but slight urographic changes the urine can perhaps be made free of bacilli by long-continued chemotherapy. With the introduction of chemotherapy the prognosis has changed for patients with bilateral destruction or with tuberculosis in the remaining kidney; in a few of the first-named bilateral partial resection can be done, but in the others chemotherapy should be applied over a long period. Probably the combination of *p*-aminosalicylic acid and small doses of streptomycin is most expedient both as to effect on the bacilli and prevention of development of resistance. Perhaps some of these patients will become free of bacilli. In most cases recurrence is likely; here several courses of treatment are advised. The process can probably be influenced, possibly to a considerably degree, so that the patients will feel better and possibly live longer.

Presse Médicale, Paris

60:1719-1738 (Dec. 20) 1952. **Partial Index**

Immobilization Test of Treponema Pallidum and Phenomenon of Adherence-Disappearance in Syphilis. R. A. Nelson.—p. 1719.
*Therapeutic Test in Chronic Adrenal Insufficiency. P. Michon.—p. 1722.
Discovery and Reeducation of Deaf Children in South-West Part of France. J. Despons, M. Portmann, C. Portmann and O. Taillefer. —p. 1724.
Recurrence of Rheumatic Carditis After Recovery from Subacute Bacterial Endocarditis: Efficacy of Cortisone and Corticotropin (ACTH). B. S. Djordjevic, M. Djordjevic-Joksic, Z. Levental and T. Straser. —p. 1726.

Desoxycortisone Acetate in Diagnosis of Addison's Disease.—The value of administration of small doses of desoxycorticosterone acetate in establishing a diagnosis of Addison's disease in patients with chronic adrenal insufficiency is stressed. One intramuscular injection of 10 mg. (15 mg. in severe cases of insufficiency and 5 mg. in abortive cases) of desoxycorticosterone acetate is given daily for six weeks to these patients. Concurrently medical supervision is most careful to detect the least sign of intolerance, and the diet is rich in sodium chloride and sometimes supplemented by parenteral administration of sodium chloride in cases of pronounced salt depletion and cachexia. If the patient in whom the disease is suspected tolerates the administration of the hormone during the six weeks without any sign of intolerance but has a relapse as soon as it is interrupted, the presence of Addison's disease is confirmed and the hormone therapy should be continued in massive doses. Implantation of desoxycorticosterone acetate pellets is the treatment of choice and will not cause untoward effects in these patients. A course of ten 100 mg. pellets of the hormone guarantees adrenal balance for about one year if the patient's weight and his diet (this should now be low in sodium chloride) are checked carefully. One of the author's patients was able to carry a normal pregnancy to term after she had three courses

of pellet implantation. On the other hand, if the six weeks' test with desoxycorticosterone acetate causes pronounced signs of intolerance, a diagnosis of Addison's disease should be rejected despite the deceiving symptoms suggesting its presence. In addition to these two alternatives, the test may reveal a transitory or abortive adrenal insufficiency that often can be cured but sometimes may result in Addison's disease. To confirm the validity of this test, the author describes its results in some of his patients and suggests that until a sure and pathognomonic biological test is found, this should be the test of choice in establishing a diagnosis of Addison's disease.

Proceedings of Royal Society of Medicine, London

46:1-52 (Jan.) 1953. **Partial Index**

Sites of Production of Antibodies. C. L. Oakley.—p. 1.
Death Due to Treatment. W. S. Maclay.—p. 13.
The Surgeon and His Environment. F. A. R. Stammers.—p. 21.
Tactile Thought, with Special Reference to the Blind. M. Critchley.—p. 27.
Hydronephrosis. J. G. Yates-Bell.—p. 31.
Pituitary-Adrenal Hyperfunction. S. L. Simpson.—p. 39.

Progresso Medico, Naples

8:725-756 (Dec. 15) 1952. **Partial Index**

*Electrocardiographic Investigation in Judging Evolutive Process of Rheumatic Heart Disease. L. Grossi, L. Garello and G. Migliorini.—p. 725.
Additional Studies on Zonal Manifestations of Silicosis: Body Section Radiographic Study. A. N. Cesaro and P. C. Talini.—p. 730.
Antianemic Action of Cobalt: II. Modifications of Blood Iron Level During $CoCl_2$ Treatment of Neoplastic Anemias. M. Falzoi and M. Gelati.—p. 734.

Electrocardiograms in Patients with Rheumatic Heart Disease.—The electrocardiograms of 56 patients with rheumatic heart disease were studied concurrently with the leukocyte count, the erythrocyte sedimentation rate, and the temperature curve in an attempt to ascertain whether the eventual modifications in the tracing and mainly in the QT interval are indicative of the evolving process of the disease. Only patients with normal cardiac rhythm who had not received digitalis for at least 15 days were considered, and most of them had lesions of the mitral valve. The leukocyte count was above normal (8,000 per cubic millimeter) in 28 (50%), the erythrocyte sedimentation rate was elevated in 30 (53.5%), and the temperature was elevated in 14 (25%). The QT interval was prolonged in 10 patients. This sign was present in three patients with elevated erythrocyte sedimentation rate, one with elevated temperature, one with increased number of leukocytes, two with increased number of leukocytes and elevated erythrocyte sedimentation rate, and two in whom all the three tests had given increased values, and it was the only pathological sign in one patient. A prolonged QT interval was found in eight patients with lesions of more than one valve, in two patients with mitral stenosis, and in none with mitral insufficiency. The deviation of the electric systole was not correlated with elevated temperature, erythrocyte sedimentation rate, or increased number of leukocytes. Modifications in the electrocardiographic tracing and especially in the QT interval were of no value in estimating the evolving process of rheumatic heart disease.

Rev. Argent. Dermatosif., Buenos Aires

36:217-336 (Oct.-Dec.) 1952. **Partial Index**

Classification of Clinical Forms of Leprosy and Conditions of Reaction. J. C. Gatti and J. E. Cardama.—p. 229.
*Malignant Melanoma Treated with Antirabic Vaccine (Pack's Method): Case Report. M. J. T. de Auster, C. A. Crivellari, E. Galante and R. Colillas.—p. 243.
Para-Aminobenzoic Acid in Treatment of Diffuse Scleroderma: Three Cases. L. M. Baliña.—p. 261.

Malignant Melanoma Treated by Antirabies Vaccine (Pack's Method).—The subject of this report was a woman of 66 with malignant melanoma on the right foot, for which she had roentgen irradiation in 1939. Later on, metastases appeared on the right leg and the right groin. In 1951 the metastases grew painful and the patient lost 10 kg. in weight in a month. The treatment consisted in the administration of antirabies vaccines, which were given in three series of 20 injections each, with intervals of two months between the series. By the end of the treatment the patient had gained 7 kg., her general condition improved, the blood picture became normal, and clinically and roentgenologically the appearance of new metastases stopped. The metastases diminished in size. The appearance of the primary lesion did not change. According to the author, this treatment is of value in the treatment of malignant melanoma and nevocarcinoma.

Schweizerische medizinische Wochenschrift, Basel

83:1-24 (Jan. 3) 1953. **Partial Index**

Facts and Theory in Medicine. A. Gigon.—p. 1.
Metastasizing Carcinoid of Small Intestine with Severe Valvular Defects Occurring Predominantly in Right Heart and Pulmonary Stenosis—a Peculiar Syndrome? P. Isler and C. Hedinger.—p. 4.
*Clinical and Cytological Effects of Combined Treatment with Estrogens and Androgens in Menopausal Syndrome. H. de Watteville and B. Lunenfeld.—p. 14.
*Mesenteric Venous Thrombosis: Cure with Anticoagulants. F. Koller and W. Siegenthaler.—p. 18.

Combined Treatment with Estrogens and Androgens for Menopausal Syndrome.—Seven women between the ages of 34 and 78 with pronounced menopausal disturbances, occurring after surgical castration in 2, after castration by roentgen rays in 2 and after spontaneous menopause in 3, were treated with five preparations in tablet form of the same appearance and taste, but containing various drugs as follows: (1) 0.01 mg. of ethinyl estradiol plus 5 mg. of methyltestosterone, (2) 5 mg. of methyltestosterone, (3) 0.01 mg. of ethinyl estradiol, (4) 25 mg. of methylandrostenediol, and (5) placebos without any active principle. Each of the five preparations was given for 15 days with an interval of 15 days between each course. The daily dose consisted of three tablets of preparations 1, 2, 3, and 5, while one tablet of preparation 4 was given every second day. Results were as follows: The placebos did not exert any therapeutic effect but were well tolerated. The methylandrostenediol tablets were ineffective, but were well tolerated and there was no virilization. Of four patients who were given ethinyl estradiol tablets, flushes were rapidly diminished and night sweat disappeared in three, fatigability was accentuated in three, and orgasm was not influenced. General drug intolerance with painful congestion of the breasts occurred in one patient. Of six patients who were given methyltestosterone tablets, flushes diminished gradually in five and night sweats were reduced in all six. Fatigability was improved in four, and orgasm increased gradually in six. Pronounced euphoria occurred in one patient. The drug was well tolerated, and there was no virilization. Of the seven patients who received combined ethinyl estradiol and methyltestosterone tablets, one reported complete disappearance of the flushes and the others noticed considerable diminution. Night sweat and fatigability disappeared completely in all patients. Orgasm occurred in the five patients who had complained of frigidity. The drug was well tolerated; neither hyperfolliculinism nor virilization occurred, even in the four patients who were treated for three to eight months, but increase in body weight was observed in each of these patients. Study of the vaginal smears revealed rapid proliferation with increase in superficial cells at the expense of basal and intermediary cells. There was no change in acidophilic staining or nuclear pyknosis. The glycogen content of the desquamated vaginal cells was considerably increased. Some leukocytes persisted, and there was slight exudation. These results confirmed the favorable impression obtained by the authors in 100 women with menopausal syndrome who were given one to three tablets containing 0.01 mg. of ethinyl estradiol and 5 mg. of methyltestosterone, daily for one week to several months. As a result of their experience, the authors state that estrogens and androgens administered simultaneously exert a synergistic inhibitory effect on the secretion of the gonodotropic hormone of the pituitary and consequently a rapid and pronounced favorable effect on the menopausal disturbances. Improvement of the general condition is particularly striking. The synergistic effect of the two hormones allows for a decrease of the dose of each of the two, thus reducing the intolerance of both. The antagonistic effect of androgens and estrogens at the level of the endometrium, myometrium, and the mammary glands prevents

pathological proliferation of these receptors, which may be observed occasionally with administration of estrogens alone entailing genital hemorrhage, growth of fibromatous nuclei, and mastopathy. A cure of atrophic vaginitis may be obtained without considerable side-effects. By the simultaneous administration of estrogens and androgens certain virilizing effects of the androgens, particularly increased facial hair and baldness, are diminished.

Anticoagulants in Mesenteric Venous Thrombosis.—The occurrence of mesenteric venous thrombosis five weeks after splenectomy in a 47-year-old man with bronchiectasis is reported. The patient was given 200 mg. of cyclocumarol ("cumopyrin") orally, but severe abdominal pains, pulse of 150 per minute, leukocyte count of 21,800 per cubic millimeter, and retention of feces and flatus made laparotomy unavoidable. It revealed considerable thickening and swelling of the entire mesentery. The veins were thick as pencils and massively thrombosized. Incipient necrosis of the intestine extended for two to three meters so that resection of a portion of the intestine was no longer feasible. Anticoagulant therapy then was started with heparin (4 to 6 cc., i. e., 20,000 to 30,000 international units, corresponding to 200 to 300 mg. standard heparin daily) by intravenous drip. Hemoptysis, apparently from the bronchiectasis, occurred on the third postoperative day, heparin was discontinued for 24 hours, and 800 cc. of preserved blood were given to check the hemorrhage. The hemoglobin was reduced from 89% to 53%. Subsequently a rapid increase in the prothrombin concentration required continuation of the anticoagulant treatment. Heparin in a daily dose of 6 cc. (300 mg. of standard heparin) was given by intravenous drip for five days. On the ninth postoperative day administration of cyclocumarol was resumed and continued for six months, while heparin was discontinued when the prothrombin level according to Quick had been reduced to 20%. Six months after the laparotomy the patient was in excellent condition. He had gained 7 kg. (16 lb.), he did not have any intestinal disturbance, and his gastrointestinal function was normal. It is suggested that the ample collateral circulation in the mesentery was sufficient for the prevention of total necrosis of the intestine, and that finally normal perfusion was accomplished by the gradual dilatation of the collateral vessels.

Semaine des Hôpitaux de Paris

29:89-162 (Jan. 10) 1952. **Partial Index**

*Experimental Study of Influenza Virus: Influenza Epidemic of 1950-1951. G. Cateigne, B. Fauconnier and P. Brygoo.—p. 90.
*Antigenic Study of Influenza Virus Strains A′ and B 1951: Egg-Neutralization Method. B. Fauconnier.—p. 99.
Statistical Serologic Study of Influenza Epidemic in Paris During 1950-1951. G. Cateigne, B. Fauconnier and C. Hannoun.—p. 102.
Serologic and Immunologic Problems in Atypical Virus Pneumonia and Its Complications. A. Eyquem, G. Cateigne, C. Hannoun and B. Fauconnier.—p. 105.

Experiments with New Strains of Influenza Virus.—Results are reported of experiments on ferrets, mice, and monkeys with the two new strains of type A and type B influenza virus that were isolated in France during the 1950-1951 influenza epidemic. One of them was recovered from patients living in Paris (strain A′ Paris 1951), and the other from patients of the Provence (strain B 1951). Their first identification was made by comparing the inhibiting power of the immune serums A, A′, and B against these strains. Electronic microscopy revealed besides little spheric corpuscles some elongated filamentous structures in strain A′ Paris 1951 whereas these were never present in strain B Paris 1951. Ferrets were inoculated intranasally under ether anesthesia with the two strains which, recovered from throat washings of patients after penicillin and streptomycin therapy, were isolated on embryonated eggs. The strain A′ was much more virulent for ferrets than strain B; the illness was much severer and the convalescence longer. Adaptation of strain A′ to mice, which were also inoculated intranasally under ether anesthesia, was hard to obtain despite alternated mouse-egg inoculation and the addition of cultures of streptococci and killed Friedländer bacilli to the virulent allantoic fluid used. Although the virus multiplied in the respiratory tree, not one mouse died. On the other hand, when the same method was used with the strain B 1951, there was a pronounced multiplication of the virus in the respiratory apparatus and the mortality was 80 to 90% within six days. A meningoencephalitis syndrome appeared in a monkey that was inoculated intracranially while under ether anesthesia with second-passage allantoic fluid of strain A′. On the seventh day the dying animal was killed after a slightly hemorrhagic fluid with 12 leukocytes per cubic millimeter had been withdrawn suboccipitally. Autopsy revealed characteristic lesions to the central nervous system and mainly to the gray matter suggesting a direct action of the living virus which multiplying produced an infectious encephalitis of the polyoencephalitic type. The withdrawn fluid was inoculated in embryonated eggs and the virus developed; the pulverized brain of the dead animal was inoculated in another animal and a fulminating respiratory attack occurred. This proves that the virus was present in the central nervous system of the first animal in a virulent phase. In another monkey inoculated intranasally with second-passage allantoic fluid of the same strain there was not only pulmonary involvement but also a meningeal syndrome. Unfortunately, in this animal the authors could not establish whether the cerebral attack was due to the virus itself or to irritation to the nerve terminations of the neurovegetative system. On the other hand, intranasal and intracranial inoculation of monkeys with strain B Paris 1951 gave negative results except for a thermic reaction. The varying clinical character of these two new strains of influenza virus, the reaction of various animals to them, and the possibility that different parts of the organism may be attacked by the new strains were demonstrated in this study.

Antigenic Study of Strain A′ and B 1951.—An antigenic study was made with the egg neutralization method on the strains A′ and B 1951 of the influenza virus that were isolated in France during the 1950-1951 epidemic. They were compared with strains of group A (PR8 and WS), group A′ (Baratt, D48, RHO and FM1), and group B (B Lee and B1) viruses. All strains had been isolated and kept by means of the usual passages on embryonated eggs. The antigenic reactions of the various strains were not alike and there were substantial differences between some of them. The study revealed that strain A′ Paris 1951 belongs to the already well-known strains of group A′, and of these the D48 seems to be the closest to it. This confirms the results that were obtained in studies on the serums of patients during the epidemic. In fact, those with high titers of antibodies against the strain D48 were equally active against the strain A′ 1951. The immune serum A′ 1951 had a weak neutralizing power against the strain PR8 and it was even inferior to its neutralizing power against the strains of type B. The strain B 1951 seemed closest to the B1, the strain that was isolated some years ago in Czechoslovakia. It is less like the classic American strain B Lee. It was proved also that the strain A′ 1951 does not have any antigen in common with strains of different groups (A and B) as was believed at first, but belongs strictly to the group of strains A′ which were isolated in Europe after 1947.

Strahlentherapie, Munich

89:321-480 (No. 3) 1952. **Partial Index**

Experiences with the 31 Mev-Betatron: II. The 31 Mev-Betatron (Ray Transformer) in the Radiotherapeutic Clinic in Zürich. R. Wideröe and H. R. Schinz.—p. 321.
Modification of Tonus of Sympathetic System by Irradiation with Ultraviolet Light: I. Metabolic Studies on White Mice. W. Hanke.—p. 356.
Prognostic Characteristics of Fibrosarcomas. M. Goes.—p. 373.
*Question of X-Ray Sensitivity of Renal Carcinoma: Case Report. W. Heinrich.—p. 397.
Roentgen Irradiation of Cutaneous Tumors. W. Greve.—p. 401.
Critical Evaluation of Treatment of Hemangiomas. E. H. Graul.—p. 409.
New Therapeutic Possibilities in Induratio Penis Plastica. G. Aurig and H. S. Süsse.—p. 433.
*Treatment of Irradiation Intoxication by Suppression of Irritability of Sympathetic Nervous System. A. Zuppinger.—p. 437.
Prognostic Importance of Changes in Vaginal Smears Following Radium or Roentgen Irradiation. G. Besserer and H. Smolka.—p. 442.

X-Ray Sensitivity of Renal Carcinoma.—Heinrich presents the case of a man, aged 34, who had hematuria and pains on the right side, which radiated toward the bladder. Urologic examination revealed a large tumor, twice the size of a child's head,

in the right kidney, which was sensitive to pressure. The poor general condition made surgical intervention inadvisable, and treatment with roentgen rays was instituted. The tumor proved highly sensitive to irradiation, and decreased in size so that two months later nephrectomy could be carried out. The tumor proved to be an adenopapillary carcinoma. In the 3½ years that have elapsed since operation, the patient has remained free from recurrence, has gained weight, and is able to do his work as a gardener. Although irradiation therapy of malignant renal tumors is generally not very promising, it could be tried in otherwise hopeless cases, because irradiation might render an otherwise inoperable tumor still operable and operation may then still produce cure.

Treatment of Irradiation Intoxication.—On the basis of the theory that the disturbances that characterize irradiation intoxication are largely influenced by the sympathetic nervous system, Zuppinger decided to reduce the irritability of this system by administering dihydroergotamine. Although dihydroergotamine was more effective than other therapeutic measures had been, it failed in a relatively large number of cases and the therapeutic results became satisfactory only after tincture of belladonna was given in addition to the dihydroergotamine solution. Various dosages were tried; in the most recent cases 20 drops of a 0.2% solution of dihydroergotamine were given combined with 10 drops of tincture of belladonna. In the first 100 patients who were treated only with dihydroergotamine, all symptoms disappeared in 51 cases, another 30 patients showed improvement, 10 remained uninfluenced, and in 10 the symptoms were found to be due to other causes. The diagnosis of irradiation intoxication is sometimes made erroneously; liver metastases, esophageal stenosis, ileus, cystopyelitis, and cerebral edema were some of the conditions that were found in patients in whom irradiation intoxication had been held responsible for existing symptoms. Freedom from all symptoms was achieved most frequently in those in whom irradiation had been applied to thorax, neck, or cranium. In those in whom irradiation had been applied to the upper abdomen, the symptoms of irradiation intoxication were completely counteracted in only about one-third of those who were influenced at all, and the other two-thirds were somewhat improved, but failures were rather frequent. The author feels that suppression of the irritability of the sympathetic nervous system by the combined administration of dihydroegotamine and belladonna attacks only one of the factors involved in irradiation intoxication; further elucidation of the pathogenesis of this disorder may lead to other therapeutic or prophylactic measures. Dihydroergotamine and belladonna were never given prophylactically.

Wiener klinische Wochenschrift, Vienna

65:37-80 (Jan. 16) 1953. Partial Index

*Additional Experiences with Surgical Treatment of Mitral Stenosis. W. Denk.—p. 38.
Epidemic Keratoconjunctivitis in Vienna in 1938. A. Pillat.—p. 41.
*Diagnosis of Microcarcinomas of Cervix Uteri. H. Zacherl.—p. 43.
Restoration of Vision After Transplantation of Cornea. H. Hoff and F. Seitelberger.—p. 45.
Tasks, Procedure and Results of Audiometry. E. Schlander and F. Neuberger.—p. 47.

Surgical Treatment of Mitral Stenosis.—Mitral stenosis was treated surgically by the finger fracture technique in 17 patients at the second surgical clinic of the university in Vienna. In three patients the auricular appendage was small and completely obliterated, so that surgical intervention on the stenosed valve could not be performed. Two of these patients died postoperatively on the third day and the fourth week, respectively. Necropsy revealed recent endocarditis at the stenosed mitral valve. In a fourth patient, the finger could not be inserted through the auricular appendage into the auricle, possibly because of a too narrow communication between the auricular appendage and the auricle; it might also be assumed that the continuous sutures at the base of the auricular appendage may have caught both walls. It is therefore recommended that the sutures be placed first and the clamp be applied after that. In a fifth patient the mitral orifice was so wide and delicate that an erroneous diagnosis had to be considered. In the remaining 12 patients the operation was completed, and, in 9 of these, tears of the commissures were definitely felt. There were no postoperative and no late deaths among these nine patients. Eight patients were considerably improved, and one, in whom a small tear could be felt only after the fourth insertion of the finger, was not improved nine months after the operation. Cerebral embolization occurred in two of the nine patients, but there were no postoperative complications in the other seven. The preoperative dyspnea had disappeared in all. Cardiac output and minute volume were increased in the eight improved patients, and in some to normal values. Congestion in the pulmonary circulation was reduced. An anatomic cure cannot be obtained by the operation and the presystolic murmur was still audible. The patients were followed up postoperatively for more than one year, and the improvement persisted. In 3 of the 12 patients in whom the operation was completed the stenosis was quite elastic or rigid so that only dilatation but no tear of the commissures could be obtained. One of these three patients died within five weeks after the operation; necropsy revealed aneurysmal dilatation of the left ventricle, numerous myocardial indurations and rigid stenosis resulting from calcium deposits, so that, despite strongest pressure with the finger, the orifice could not be widened. As a result of his experience with commissurotomy, the author feels justified in recommending it for surgical treatment of mitral stenosis.

Diagnosis of Microcarcinoma of Cervix Uteri.—Zacherl's concept of microcarcinoma is that of an invasive carcinoma that cannot be detected on macroscopic examination. In this stage the disease is asymptomatic. During 1952, 15 cases of microcarcinoma of the cervix uteri were detected by the author on combined colposcopic and cytological examination. In 9 of these 15 women results of both the colposcopic examination of the portio vaginalis of the cervix and the cytological examination of portio smears, made an exploratory excision necessary. The cytological findings, however, were more definitive, in that the abnormal cells could be considered to be of squamous cell carcinoma type. Carcinoma was revealed by the exploratory excision in eight of the nine cases. With the aid of the colposcope exploratory excision of the area of the portio with the maximum atypical epithelial covering becomes possible under direct vision. Microscopic examination of unstained serial sections of the biopsy specimen revealed initial invasive growth in six cases, but in the remaining two cases the findings in the unstained sections suggested intraepithelial localization while stained preparations demonstrated carcinomatous invasion of the portio. In one case, cytological examination of the biopsy specimen obtained from the center of the only suspicious area revealed a small stripe of mildly atypical squamous epithelium. In view of the clear cytological findings, a second exploratory excision was done on the other lip of the os uteri, which appeared normal; this too showed microcarcinoma. Operation was performed, and the specimen showed that the surface of the initially invasive growth measured only a few cubic millimeters. In the remaining six of the author's 15 cases results of the cytological examination were clearly positive with respect to microcarcinoma, while colposcopic examination revealed no abnormalities. Schiller's test established the correctness of the cytological diagnosis in all six cases. As a result of these observations the author suggests that gynecologists and also practitioners should forward to a cytological laboratory a fixed portio smear obtained from every female patient between the ages of 35 and 55, and women in these age groups should submit to such an examination every six months. The author strongly opposes the view that carcinoma of the cervix can always be detected macroscopically by an experienced gynecologist or that at least carcinoma can be excluded if the portio appears to be macroscopically intact.

BOOK REVIEWS

Gifford's Textbook of Ophthalmology. By Francis Heed Adler, M.D., Professor of Ophthalmology, University of Pennsylvania Medical School, Philadelphia. Fifth edition. Cloth. $7.50. Pp. 488, with 307 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1953.

Ever since the appearance of the first edition in 1938, Gifford's "Textbook of Ophthalmology" has been one of the most widely used textbooks on the subject for the undergraduate medical student and the general practitioner. After the death of Sanford R. Gifford in 1944, Dr. Adler was selected to prepare future editions; this is the second to appear with his direction. This edition shows considerable improvement over the preceding one in that much irrelevant material has been abbreviated and the section on medical ophthalmology has been increased. Quite properly, the details of surgical technique have been eliminated, but the indications for surgery have been retained. The discussion of ocular motility has been reduced from 50 to 43 pages, and the technical aspects of certain special ophthalmologic examinations, such as slit-lamp biomicroscopy, have wisely been abbreviated. Material on light and vision has been added as have numerous new and better illustrations.

While there remains some difference of opinion as to how detailed the student's study of the eye should be, there is no doubt that textbooks of adequate scope are a necessity for reference purposes at least. As a reference and as a textbook, this may be highly recommended as a well-written, authoritative, and up-to-date book. It is also an excellent book for the general practitioner who wishes some information regarding particular eye disorders. Portions make good reading for the experienced ophthalmologists, particularly the section on therapeutic agents used in ophthalmology and those dealing with ocular disorders caused by diseases of the central nervous system and with ocular manifestations of general disease.

Body Temperature: Its Changes with Environment, Disease and Therapy. By W. A. Selle, Ph.D., Professor of Biophysics and Physiology, University of California Medical School, Los Angeles. Publication number 147, American Lecture Series, monograph in American Lectures in Physical Medicine. Cloth. $3.50. Pp. 112, with 23 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queens St., W., Toronto 2B, 1952.

This book offers a concise review of thermal phenomena in the human body. The opening chapter discusses the importance of heat regulation, its development in infancy, and the normal values under varying conditions. Subsequent chapters take up heat production, heat dissipation, the integrated action of the various regulatory mechanisms, the details of the neural mechanism, internal disturbances, and environmental disturbances. The final chapter deals with sensitivity to heat and cold. There is a bibliography of 222 references and a brief index.

The manner of presentation is clear and succinct; the subject matter is of scientific importance, and human interest is added by allusion to such instances as the Chicago "deep-freeze" woman. The details of this case, not available when this book was written, have since been published by Laufman in THE JOURNAL (**147**:1201-1212 [Nov. 24] 1951). The passages on rewarming frostbitten bodies (pages 80-92) do not mention the all-important principle contributed by Siple that the key to rewarming is sequence, not rate, and that the circulation must be ready to enter each successive area as soon as it is thawed. To raise the temperature of an isolated ischemic part means to increase its need for oxygen before the need can be met; the resultant pain can be seen in cases of thromboangiitis obliterans not properly treated. That fact that special studies of frostbite are in progress in Korea illustrates the importance of the subject of this commendable book.

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

The Nature and Significance of the Antibody Response. Edited by A. M. Pappenheimer, Jr. Symposium of Section on Microbiology, New York Academy of Medicine, number 5. Symposia held at New York Academy of Medicine, March 21 and 22, 1951. Cloth. $5. Pp. 227, with illustrations, Columbia University Press, 2960 Broadway, New York 27; Oxford University Press, Amen House, Warwick Sq., London, E.C.4, 1953.

This is the printed record of a symposium held under the auspices of the New York Academy of Medicine. The contributors are outstanding workers in their field. The scope of the work is best indicated by a list of some of the contributors and the subjects about which they wrote. Felix Haurowitz, Indiana University, presented "Theories of Antibody Formation"; Jules Freund, Public Health Research Institute of the City of New York, "The Response of Immunized Animals to Specific and Nonspecific Stimuli"; Michael Heidelberger, College of Physicians and Surgeons, Columbia University, "Persistence of Antibodies in Man After Immunization"; Elvin A. Kabat, College of Physicians and Surgeons, Columbia University, "The Unity and Diversity of Antibodies"; A. M. Pappenheimer Jr., New York University College of Medicine, "Valence of Antibodies"; Francis C. Lowell, Robert Dawson Evans Memorial Hospital and Boston University School of Medicine, "Skin-Sensitizing Antibody and Allergy and Resistance to Insulin"; Merrill W. Chase, Rockefeller Institute for Medical Research, "Immunological Reactions Mediated Through Cells"; F. J. Dixon, S. C. Bukantz, G. J. Dammin, and D. W. Talmage, University of Pittsburgh School of Medicine and Washington University School of Medicine, "Fate of I^{131}-Labeled Bovine Gamma Globulin in Rabbits"; Charles A. Janeway, Harvard Medical School and Children's Medical Center, Boston, "Fate and Effects of Injected Protein Antigens"; and David Pressman, Sloan-Kettering Institute for Cancer Research, "Radioactive Tracers in the Study of Anti-Tissue Antibody."

The high caliber of the presentations is, of course, guaranteed by the quality of the contributors. A minor defect that is almost necessarily inherent in a work of this nature is the lack of continuity in the work; some of the essays tend to be a bit sketchy. Thorough bibliographies are given after each of the contributions. A minor criticism, in two of the bibliographies, is the failure to include the titles of the articles cited. After a few of the essays, the actual discussion that took place at the symposium is included. The book seems free from typographic errors, since only one was noted. The book is a must for the graduate student as well as research workers in this particular field and for the physician who is especially interested in immunology. It is doubtful that physicians in general would find the information interesting. The subject is probably too limited and too specialized to be of much value to an undergraduate medical student.

Child Adoption in the Modern World. By Margaret Kornitzer. Cloth. $4.50. Pp. 403. Philosophical Library, Inc., 15 E. 40th St., New York 16, 1952.

The practices and problems of adoption in England and its territories are the principal concern of this book, which, despite its title, devotes but little space to the adoption procedures in other countries of the world. Proceeding on the premise that adoption in England, legal for but 26 years, is still on trial, the author discusses social and legal aspects of adoption objectively but generally. Attention is directed to the reasons for adoption, the qualifications of those who desire to adopt, the problems involved in accomplishing adoption, and the welfare of the child who has been adopted. Information is given about the responsibilities of and the services rendered by adoption societies in Great Britain. Improvement in the process of adoption is described, and the importance of careful investigation of all facts concerning each adoption is emphasized. Discussion of adoption procedures and problems in the United States, France, Greece, Norway, Sweden, Switzerland, the Low Countries, and Italy is too limited to be informative to anyone who desires more than conversational knowledge of the subject.

Clinical Electrocardiography: A Textbook for Practitioners and Students. By Dr. Max Holzmann. Translated by Douglas Robertson, M.A., D.M., M.R.C.P., Originally published in German under title of Klinische Elektrokardiographie. Cloth. $21. Pp. 647, with 302 illustrations. Staples Press, Inc., 70 E. 45th St., New York 17; Staples House, Mandeville Pl., London, W.1, 1952.

This is a translation of the second German edition of Holzmann's "Klinische Elektrokardiographie," which was published in 1951. Holzmann, who for many years has made important contributions to the literature on electrocardiography, published the first edition of his book in 1945 during World War II. Since he did not have access at that time to the advances in electrocardiography outside of Europe, it was necessary to make a complete revision of his book when that material became available.

On the whole, excellent coverage of all phases of electrocardiography has been incorporated in this edition. The author has wisely refrained from detailed descriptions of the many types of electrocardiographs on the market today and has confined his remarks to pointing out possible errors in technique in recording of the electrocardiogram. The basic electrophysiological principles are adequately discussed in a short chapter. Considerable space is allotted to the normal electrocardiogram, including not only the present conventional 12-lead electrocardiogram but esophageal and intracardiac leads and the vectorcardiogram as well. The effects of position, exercise, age, and other factors on the normal electrocardiogram are considered in a chapter entitled "Physiological Variations of the Normal Electrocardiogram." Abnormal electrocardiograms in all types of diseased states are described and discussed adequately.

The book would be much easier to read if the translation were not so literal; for example, on page 603, the following sentence appears: "In cases with a marked start of the rapid main change, we find that the greatest negativity-change often bears a normal relationship to this other change; but in other cases there may be a unilateral late incidence." The book is well illustrated with electrocardiograms and diagrams, and the bibliography is excellent. The cardiologist who is interested in the European point of view on present-day electrocardiography will probably want to add this reference book to his library.

Chirurgie des voies biliaires de l'adulte et du nourrisson: Technique et tactique. Par M. Champeau et P. Pineau. Avec la collaboration de A. Prochiantz et Mme S. Desvignes. Paper. 3000 francs. Pp. 438, with 133 illustrations. Masson & Cie, 120 boulevard Saint-Germain, Paris 6e, 1952.

This comprehensive monograph comprises numerous sections describing the following subjects: normal anatomy of the biliary system, structural anomalies, pathological lesions, preoperative and postoperative treatment, surgical technique, anesthesia, methods of resuscitation, selection of the operation according to the character of the lesion, and, finally, surgery of congenital conditions in the newborn. However, only 11 lines and one illustration are devoted to the description of variations of vascular relationships of the bile ducts.

Right transrectal incision is reserved for cholecystostomy, while right paramedian incision with displacement of the rectus muscle laterally is employed routinely. Subcostal incision parallel to the costal arch is used only for difficult procedures, for instance, when a mass is palpable before the operation, or when a second intervention is planned. Abdominothoracic incision is considered superfluous. Considerable space is devoted to the surgery of congenital conditions in the newborn, such as atresia or agenesis of the biliary tract, or extrahepatic obstruction or idiopathic cystic dilatation of the common duct. The authors emphasize the value of operative cholangiography and Caroli's radiomanometry. Both methods are used by them in nearly every case.

The text is adequately illustrated with diagrams and reproductions of cholangiograms. The subject matter is up-to-date and is presented in a simple, orderly manner. The systematic arrangement, combined with an attractive format, facilitates the use of this book as a reference manual. The style is lucid, and the paper and print are excellent. There is a syllabus but no index or bibliography, and the volume is not bound. Although comparable manuals are available in English, the treatise should be of interest to American specialists because it reflects the views of outstanding French surgeons.

Diseases of the Skin: A Manual for Students and Practitioners. By Robert M. B. MacKenna, M.A., M.D., F.R.C.P., Physician-in-Charge of Dermatological Dept. and Lecturer in Dermatology, St. Bartholomew's Hospital and Medical College, London. First compiled by late Robert W. MacKenna, M.A., M.D., Ch.B. With chapter concerning radiology by I. G. Williams, F.R.C.S., D.M.R.E., F.F.R., Director of Dept. of Radiotherapy, St. Bartholomew's Hospital. Fifth edition. Cloth. $8. Pp. 611, with 215 illustrations and 27 plates. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; Baillière, Tindall & Cox, 7-8 Henrietta St., Covent Garden, London, W.C.2, 1952.

For 30 years MacKenna's book has been one of the reliable standard texts in dermatology, because it is authoritative, interestingly written, and well illustrated. The fifth edition, like the preceding ones, fulfills needs of the student as well as the general practitioner. The descriptions of the various diseases are excellent and concise; differences between seemingly similar diseases are stressed; and directions for treatment are plain and, in many instances, dogmatic. There are 27 chapters covering the field of dermatology from the fundamentals such as anatomy and physiology, through therapy and the various diseases of the skin and its appendages, to an appendix listing favored prescriptions. Twenty-seven colored plates contain about 40 illustrations that are adequate although they are not always true color reproductions. The black and white illustrations are excellent. The author recommends, contrary to practice in this country, that syphilis be treated with arsenicals and bismuth in addition to penicillin. Other material throughout the book is thoroughly up-to-date.

Dermatologie. Von Univ. Prof. H. Fuhs und Univ. Prof. L. Kumer, Wien. Eleventh-twelfth edition. Cloth. $14.40. Pp. 567, with 759 illustrations. Wilhelm Maudrich, Alserstr. 19, Vienna VIII/65; Düsseldorf, 1953.

The latest edition of this German textbook contains no drastic improvements over the last edition. It has not been brought up to present standards of dermatological medicine. New advances in the field of dermatology are briefly and inadequately incorporated, and recent discoveries, such as the "L.E." cell in lupus erythematosus, are not even mentioned. Many familiar and less familiar skin diseases are omitted. Physiological problems are hardly discussed; thus the association between cholesterol metabolism and the xanthomatoses is not even mentioned. A textbook of this size should at least contain the histopathology of the commonest cutaneous entities. Most of the recommended treatment is obsolete. The antibiotics have not been given proper recognition. They are mentioned, usually in small print, when actually they are the drugs of choice. Cortisone and corticotropin should certainly have been mentioned, despite their limited availability in Europe. In the treatment of venereal diseases, the authors give more space and, it seems, also more faith to the old drugs than to the more modern antibiotics. This book is below the standards of American textbooks on the subject.

University of California Hospital Formulary and Compendium of Useful Information. Second edition. Cloth. $3.75. Pp. 318. University of California Press, Berkeley 4; Cambridge University Press, Bentley House, 200 Euston Rd., London, N.W.1, 1952.

This pocket manual has been prepared by the Hospital Pharmacy Committee of the University of California Medical Center primarily for use of the staff in that institution. It is more than a hospital formulary listing drugs available in the pharmacy. Laboratory and clinical procedures, a therapeutic index, various tables, a list of proprietary and common drug names, and treatment of acute poisoning are some of the many additional items in this book. Such a variety of information may be desirable for the particular conditions in the University of California Hospital, but it would seriously impair the usefulness of the book in other institutions. The formulary actually occupies less than a third of the book. The method of listing the drugs is not particularly good, because the average dose is given, but not the dosage forms. The particular size of capsule or tablet available in the pharmacy is not indicated. For instance, the dosage of digoxin is given as 0.5 mg., but the fact that this drug is available only in a tablet size of 0.25 mg. is not stated. The therapeutic indications and uses given for the drugs are wholly inadequate and might better have been omitted. A physician who does not have more information than what is given in this book for each drug should not use the drug.

Die Krankheiten der endokrinen Drüsen unter Berücksichtigung ihrer Anatomie und Physiologie. Von Prof. Dr. Hermann Zondek. Unter Mitarbeit von Hannah E. Leszynsky und Gerda Wolfsohn-Zondek. Cloth. 72 Swiss francs. Pp. 799, with 188 illustrations. Benno Schwabe & Co., Klosterberg 27, Basel 10, 1953.

Professor Zondek published his first textbook on endocrinology in 1923. An English version of the second edition was published in London in 1938 and was widely read in the United States and the British dominions. The present volume, in German, may be considered a new edition of the earlier volumes, although it has been entirely redone.

As in the earlier editions, the first 200 pages of the book are devoted to general anatomic and physiological principles. This covers the general scientific background of endocrinology and is oriented from the clinical rather than the general biological viewpoint. The remaining two-thirds of the book are devoted to clinical endocrinology. The author writes on the basis of long practical clinical experience, and this, with the many original photographs of patients, constitutes the most valuable aspect of the book. The views expressed are sound, and the American reader will find much of interest in Dr. Zondek's approach, in that he stresses clinical observation rather than laboratory procedures in the diagnosis of endocrine disturbances. This appears to be a desirable antidote to the modern tendency, particularly in the United States, to rely on intricate and difficult procedures in diagnosis of endocrine disturbances.

The chief criticism that can be made of the text is the omission of the most recent advances in the field. These have been developed in American laboratories and apparently were not available to the author. The photographs of patients are also deserving of better reproduction. Despite these criticisms, the book is recommended to the reader with a knowledge of German who desires a sound textbook of clinical endocrinology.

Vesalius on the Human Brain: Introduction, Translation of Text, Translation of Descriptions of Figures, Notes to the Translations, Figures. By Charles Singer. Publications of Wellcome Historical Medical Museum, new series, no. 4. Cloth. $5. Pp. 151, with 47 illustrations. Published for Wellcome Historical Medical Museum by Oxford University Press, 114 Fifth Ave., New York 11; Amen House, Warwick Sq., London, E.C.4, 1952.

The author, although he is referred to on the book jacket merely as Professor Singer, with neither his degrees nor university connections given, is obviously an English and Latin scholar. Vesalius wrote an entire treatise on human anatomy entitled *De Humani Corporis Fabrica,* completed at Padua and Venice in 1542 and printed in Basel during 1542-1543. There were seven large volumes. Dr. Singer chose for his *arbeit* the seventh volume, concerned entirely with dissections of the human brain. The original work has never been widely read, because it is written in difficult Latin, in a confused style, and is verbose and repetitious. Vesalius seems to have had sufficient anatomic material, although we have been led to believe that dissection of bodies was considered a desecration and forbidden at that time for religious reasons. "Had Vesalius done no more, he would have earned a very important place in the history of medicine." Some of the illustrations by Vesalius himself are works of art, accurate in detail, and triumphs of the woodcutter's craft.

The author says: "The Fabrica is without question one of the great achievements of the human spirit." It is one of the first great works of science done "in the modern manner," the foundation of study of human anatomy and physiology. Dr. Singer has produced a monumental work and must be commended for his scholarly attainment.

Physiologie normale et pathologique du métabolisme de l'eau: Déshydratations, œdèmes, déséquilibres hydriques. Par Jean Hamburger, professeur agrégé à la Faculté, médecin des hôpitaux de Paris, et Georges Mathé, interne médaille d'or des hôpitaux de Paris. Cloth. 2850 francs. Pp. 502, with 52 illustrations. Editions médicales Flammarion, 22, rue de Vaugirard, Paris VI^{e}, 1952.

The tremendous scope of this book is indicated by the list of 2,536 references, 40 of which are original papers by the authors. Its composition is evident from the detailed outlines of subject matter within each chapter. Furthermore, subtitles, in large type and often underscored as well, are used freely throughout the text. In addition there are 54 figures and 26 tables, for the most part original arrangements by the authors. From the assurance with which every phase of the subject is discussed, it appears that this book is not only a review and compilation but also a reinvestigation of many of the important points discussed in the papers that have been reviewed. Eleven chapters deal with the normal body content of water, intracellular and extracellular partition, water exchange and the forces of control and equilibrium, sources of water, elimination, and neurohormonal regulation (hypophysis, suprarenal cortex, medulla, thyroid, gonads, and nervous system in general).

Four chapters are devoted to methods employed in the study of general principles, total water content, extracellular water calculation, and plasma volume; three more chapters are devoted to methods of study of hemoconcentration, osmotic pressure, and elimination of water. The remaining chapters cover the pathological states related to water metabolism, such as edema and extracellular and cellular dehydration. The symptoms of each state are described in great detail. Treatment, with the exception of edema, is rather briefly discussed in each case but is still adequate. While the book contains little that is really new, the organization, integration, and interpretation should make it a valuable reference work for both the research worker and the clinician.

Surgical Applied Anatomy. By Sir Frederick Treves, Bt. Twelfth edition, revised by Lambert Charles Rogers, V.R.D., M.D., M.Sc., Professor of Surgery, University of Wales, Cardiff. Cloth. $6.50. Pp. 590, with 206 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1953.

The fact that this pioneer work, now nearly 70 years old, has gone through 12 editions and 15 reprints demonstrates its extraordinary popularity. The book, written in a simple style, is well arranged, liberally illustrated in black and red, and is set in easily read type on a good quality of paper. The use of blue coloring for illustrations of veins would have greatly enhanced the value of the diagrams. The binding is sturdy, and the small format makes the book easy to handle. The index is relatively brief but adequate. Although the book is intended chiefly for students, it deserves a place in any hospital library. It is a worthy junior companion to larger and more elaborate textbooks on surgical anatomy.

Any Questions? A Selection of Questions and Answers Published in the British Medical Journal. Second series. Cloth. 7/6. Pp. 195. British Medical Association, 19 Tavistock Sq. London, W.C.1, 1952.

The first book of this series was published in 1951. The questions and answers resemble those included in "Queries and Minor Notes" in THE JOURNAL. One physician wants to know how to treat whitlow, a term found only in the older American texts. Another is puzzled by "delayed menarche." One answer asserts that snuff-taking is a satisfactory substitute for smoking. Dr. Samuel Johnson on one occasion remarked that "smoking has gone out" to be replaced by "snuffing." It seems to have been out for a time, or until the heroes of Crimea came home smoking Turkish cheroots. This is an interesting little book for casual reading, but it is of value to Americans chiefly for comparison with our own queries.

Health Instruction Yearbook 1952. Compiled by Oliver E. Byrd, Ed.D., M.D., F.A.P.H.A., Professor of Health Education, and Director, Department of Hygiene, School of Education, Stanford University, San Francisco. Foreword by Gloyd Gage Wetherill, M.A., M.D., Director of Health Education, San Diego, City Schools, San Diego, Calif. Cloth. $3.50. Pp. 232. Stanford University Press, Stanford, California; Oxford University Press, Amen House, Warwick Sq., London, E.C.4, 1952.

Although the editor obviously has not been able to present all the material of the period in complete review form, he has made a satisfactory over-all survey of health education contributions that have appeared in medical and related publications between July, 1951, and June, 1952, following the routine established in earlier editions. The 273 abstracts, prepared from 116 different sources, cover a wide range of topics. Of considerable value are an extensive bibliography, alphabetical list of subjects, and author and subject indexes.

QUERIES AND MINOR NOTES

EXCESSIVE FLUORIDES IN WELL WATER

To the Editor:—*Well water on a farm was found to contain 5 ppm of fluorides. I was asked what could be done to reduce the fluoride content to the safe range of about 1 ppm. Bottled water could be used for drinking and cooking, or a new well could be drilled in the hope that a stratum would be hit where the water contains less fluorides. Is there any means of reducing the fluoride content of well water in such a situation?*

Heinrich Lamm, M.D., LaFeria, Texas.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—In a situation that concerns only one family, it probably would be better to resort to one of the two alternatives mentioned. While the fluoride could be removed by the use of such adsorbents as tricalcium phosphate, the problem of having the water retain constantly only about 1 ppm of fluoride would still remain. Of the two alternatives mentioned, the drilling of a new well, under expert advice, might prove more satisfactory in the long run.

Answer.—No simple method is available for the removal of excess fluorides in water that would be adaptable in this case. Several methods have been tried in the treatment of large (municipal or industrial) water supplies. Proper equipment and chemical control is necessary. The various methods include treatment with calcium phosphate or bone, aluminum sulfate, other chemicals, and ion exchange processes (Maier, F. J.: *Am. J. Pub. Health* **37**:1559 [Dec.] 1947). Most of these processes are either too complicated or too expensive for routine application.

WASP AND BEE DESENSITIZATION

To the Editor:—*A 6-year-old boy has had two anaphylactic reactions following stings of wasps, and after a red-ant bite he had a severe local reaction. He has been receiving wasp-bee-ant desensitizing antigen injections for 12 months. What is the present evaluation of such desensitization?*

W. E. Lockhart, M.D., Alpine, Texas.

Answer.—In answer to this query, it would be all-important to determine whether the insect extracts used for desensitization were potent and specific. The bees, wasps, and other Hymenoptera have been studied intensively, and it has been shown that the extracts cause specific reactions in persons who have become sensitive to the stings of those particular species. The immediate reaction and the 24 hour erythema have been found to be specific for the particular species tried, but it has also been found that there is some crossed reaction for any of the Hymenoptera following sensitization to any particular species. If the extract is reliable, the reaction to testing with Hymenoptera extract is of value in determining sensitivity to the insect, and desensitization has been found to be very effective. Also, if the series of injections for desensitization is carried on carefully and within reasonable bounds as to dosage, there is no appreciable danger of an induced sensitization. So, if suitable extracts can be obtained for the bee family, the method of desensitization is reliable and effective. A detailed study on the ants in regard to sensitization is not available. It is possible to make extracts of any suspected insects, if enough of them can be obtained. Insects need merely to be ground up, extracted in isotonic sodium chloride solution, and filtered through a Seitz or Berkefeld filter to insure sterility.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

FOOD ALLERGY

To the Editor:—*A patient is acutely sensitive to milk, eggs, all meats except rabbit and duck, wheat, corn, rice, citrus, cotton, peas, beans, many other foods, and wool. A sluggish, still active duodenal ulcer has been present for four years, and a modified Sippy diet has been followed, with use of antacids (chiefly nonabsorbable ones), such as uroanthelone. Now, with the foods mentioned above, abdominal distress, tachycardia, and pulsating headaches are manifested. With the use of skin-test-negative foods, the symptoms are avoided. Because of the prolonged ulcer diet, vitamin therapy has been employed. Is there any vitamin or mineral imbalance that could predispose to such a sensitivity?*

M.D., Florida.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—As far as is known, the tendency for allergic reactions to develop is not mediated by excesses or deficiencies of either vitamins or minerals. In the case described, the symptoms could depend on the peptic ulcer as well as on the allergic reaction, especially if any one food does not cause trouble every time it is eaten. Allergic reactions that are definite, like those to ragweed or cat dander, do not come and go.

Patients with peptic ulcers and others with "food allergies" are often unstable persons subject to suggestion. Preconceived ideas are rationalized and retained tenaciously. It must be remembered that many patients have vague symptoms as a substitute for some emotional conflict that is the real basis for their trouble. To sit down comfortably and ask, "What is the matter with you, anyway?" may be to start a veritable "confession." The next step, if necessary, is to skin-test the patient again to half a dozen of the "positive" substances, this time using the preparations of some other laboratory. If the results are not the same, something is wrong.

If the diagnosis of food allergy, in addition to the diagnosis of peptic ulcer, can be supported without question, the best treatment is desensitization. The present test-negative diet should be used as a basis, and one food that is most useful for the ulcer should be added and fed in small amounts. First, the patient may be given perhaps 1 teaspoonful of milk with every three hour feeding; on the next day he may be given 2 teaspoonfuls, then 3, 5, 8, and 12 teaspoonfuls, and then 75 cc., 100 cc., and 200 cc. At that point, he may begin taking another food, egg or wheat cereal, in a tiny amount, increasing the amount in the same way. After about three weeks the diet should be improved a great deal. Puréed vegetables with meat can be added later, all the other added foods being continued, each in moderate quantity. In this way, the allergy can be overcome, and the total patient can be treated properly.

Answer.—Relief obtained with the elimination of specific foods and the return of symptoms with their reingestion indicates food allergy. When food allergy causes gastric fullness, then epigastric aching, burning, and pressure also may occur in the epigastrium or under the sternum, even suggesting angina, especially when radiation of pain occurs in the upper chest, neck, and arms. Tachycardia in varying degrees from food allergy may occur. Some patients are allergic to almost all foods, as other patients may be allergic to almost all pollens. Allergy to all mammalian proteins may occur. A certain patient can eat only amphibian protein in frogs' legs, fish, and moderate amounts of avian protein, along with tapioca, white potato, a few vegetables, sugar, soy, the vitamins, salt, and soy oil. No traces of fruits are tolerated.

The discovery of allergenic foods in the patient described apparently has depended on positive skin reactions. One of the main reasons for the delay in recognition and control of the manifestations of food allergy is the dependence on positive skin tests. Diet trial, as with the elimination diets in which the choice of food is modified by definite scratch skin tests and by a defi-

nite history of dislikes for or disagreements to foods in the prescribed diet has been advised. The object of diet trial must be to obtain a symptom-free patient. When this is assured, then other single foods can be ordered gradually, excluding those that reproduce symptoms. It will be found that many foods causing positive reactions in scratch tests produce no allergic reactions and also that the converse occurs. The ulcer in this patient may be due to localized allergy in the duodenum. Canker sores are usually due to food allergy and infrequently to drug and bacterial allergies. Duodenal ulcer and certain gastric ulcers may arise from canker-like lesions, the tissues being the shock organs of allergy. Food and other clinical allergies depend mainly on predisposition, especially if present in both sides of the family. Physiological imbalance mentioned in the question is not apparent in food allergies.

DELTA WAVE IN ELECTROCARDIOGRAM

To the Editor:—*I saw an electrocardiogram showing the Wolff-Parkinson-White syndrome in lead CF_4. Lead 1 shows an apparently normal conduction, but leads 2 and 3 were described as showing a PR segment with an upward slope and a delta wave. I can find no reference to delta waves in the literature available to me. What are their significance? Can you describe them?*

M.D., New York.

Answer.—In the typical Wolff-Parkinson-White syndrome, the terminal portions of QRS are identical in normal and abnormal complexes, and the intervals from the beginning of the P wave to the end of the QRS complex or to the summit of R in standard and precordial leads are the same, the only difference between the two being a slow initial deflection beginning immediately after the end of the P wave and superimposed on the initial portion of the QRS complex, from which it can be readily distinguished. The slope of the initial portion of the QRS complex, because of its form, has been called the delta wave. Lepeschkin (Modern Electrocardiography, Baltimore, Williams & Wilkins Company, 1951, vol. 1, pp. 350-365) gives an excellent discussion of the types and significance of the wave, with pertinent references to the literature.

CARE OF INFANT OF A DIABETIC MOTHER

To the Editor:—*Please discuss the immediate care of a newborn infant of a severely diabetic mother. I am especially interested in proper dosage of intravenously administered glucose solutions.*

Robert E. Bolinske, M.D., Clintonville, Wis.

Answer.—Adequate control of the mother's diabetes during pregnancy will greatly reduce mortality among the newborn. The mother should be given adequate insulin therapy during delivery. The infant should receive 10 cc. of 5% dextrose in water by mouth immediately after birth and then every one or two hours during the first few days, in addition to his regular feedings. Five cubic centimeters of 5% dextrose in sodium chloride solution may be injected in each buttock if it is not taken by mouth. Other authorities recommend administration of 20 to 30 cc. of 5% lactose solution by medicine dropper every two hours for the first few days of life.

"SLIPPED SACROILIAC JOINT"

To the Editor:—*Is there such a clinical entity as a "slipped sacroiliac joint?" Some cultists in this community use this diagnosis to explain almost all lower back pain, although radiologists do not appear to find it by x-ray examination. Has it ever been seen by anyone on the roentgenogram?*

M.D., New Jersey.

Answer.—A diagnosis of slipped sacroiliac joint has frequently been made in the past, but roentgenographic evidence to substantiate the slipping has never been forthcoming. Sacroiliac joints may be separated during pregnancy, or, if a patient is run over by a truck or is injured in a serious automobile accident, he may have a dislocated joint. The diagnosis of slipped sacroiliac joint has largely given away to that of a ruptured disk. One may as well say that all lame backs are due to a slipped sacroiliac joint or a ruptured disk as to say that all headaches are due to a brain tumor.

REVERSIBLE BRONCHIECTASIS

To the Editor:—*1. In what percentage of patients does reversible bronchiectasis occur after* (a) *primary atypical pneumonia,* (b) *bronchopneumonia, and* (c) *lobar pneumonia? 2. Should patients with pneumonia who are suspected of having had bronchiectasis previously be examined roentgenographically a few weeks or several months after the pneumonia clears? 3. Should patients with pseudobronchiectasis be treated medically as if they have bronchiectasis? 4. Should a member of the armed forces who shows bronchial dilatation a few weeks after recovering from primary atypical pneumonia be given a medical discharge because of the possibility of future difficulty from bronchopulmonary disease?*

Joe M. McCurdy, M.D., San Antonio, Texas.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—1. Reversible bronchiectasis is probably a sequel to atypical pneumonia in only a small percentage of cases. Since the great majority of these patients are not closely followed after the disease has subsided and few have bronchographic studies within the first six months of their illness, no exact estimation would be possible. It is probable, however, that in 15 to 20% of patients in whom bronchiectasis is apparent three to six months after an attack of atypical pneumonia, it will be of the reversible type. This would apply also to bronchopneumonia, since the underlying pathological condition is essentially the same. It is not generally accepted that reversible bronchiectasis occurs after lobar pneumonia. 2. Bronchographic studies should be made four to eight weeks following a bout of atypical pneumonia in patients suspected of having had bronchiectasis previously. If bronchiectasis is diagnosed, it might still be in the reversible stage, and appropriate treatment should be instituted immediately to establish bronchial drainage in an attempt to restore the involved segment or segments to normal. Regardless of whether the patient's symptoms disappear, the bronchographic studies should be repeated 6 to 12 months following the initial illness. 3. Treatment of pseudobronchiectasis should be medical, similar to that of bronchiectasis. Reversible bronchiectasis may be considered as an early phase, and the use of expectorants, drainage, and antibiotics is necessary if true bronchiectasis is to be prevented. 4. A member of the armed forces need not necessarily be given a medical discharge because of bronchial dilatation following atypical pneumonia. This depends on the degree and duration of this condition, since evidence of bronchiectasis should be present at least three months after the pneumonia before it can be assumed that it is irreversible. A history suggestive of the presence of bronchiectasis before occurrence of atypical pneumonia should not necessarily be considered conclusive evidence, unless previous bronchograms showed the disease. If a productive cough follows atypical pneumonia, bronchographic studies should be done in three to six months, before the condition is considered irreversible.

Answer.—1. There are no authenticated statistics regarding the occurrence of reversible bronchiectasis or pseudobronchiectasis following primary atypical pneumonia, bronchopneumonia, or lobar pneumonia. It has been definitely shown that temporary bronchial dilatation may occasionally occur following atypical pneumonia. Ochsner (*J. A. M. A.* **93**:188 [July 20] 1929) studied a group of patients who had chronic cough and found that 90% of the group had demonstrable bronchial dilatation. Altmann and Engel (Handbuch der Röntgendiagnostik und Therapie im Kindesalter, Leipzig, Engel and Schall, 1933) demonstrated reversible cylindrical dilatation in the bronchi of children following acute upper respiratory tract infections. To arrive at any definite conclusions in this matter would require extensive bronchographic studies in a large series of postpneumonia patients. It is difficult to believe that either patients or physicians would be willing to proceed with such a project in the absence of symptoms or in the presence of only minimal symptoms. 2. So-called pneumonia in bronchiectatic patients is often actually an episode of obstructive pneumonitis resulting from bronchial obstruction with mucus plugs or thick

secretions. When drainage has again become established and the patient evacuates the retained secretions, the acute episode subsides, and the patient returns to his former state of chronic bronchiectasis. These patients may safely be bronchogrammed within a few weeks following the pneumonia. 3. Pseudobronchiectasis should, at first, be treated medically. 4. A member of the armed forces need not necessarily be discharged for bronchial dilatation following atypical pneumonia. It is undoubtedly true that there are many such cases that will completely clear, leaving no residual bronchopulmonary disease. At the same time, it is probably true that such an episode would have some tendency to predispose to future bronchiectasis. Fleischner (*Am. J. Roentgenol.* **46**:166, 1941) described a case in which grossly dilated bronchi were demonstrated and had returned to normal within seven months. A bronchogram made at a later date again revealed bronchiectasis, and surgery was required. The test of time is the true criterion in this situation. True bronchiectasis is a chronic progressive disease, and its manifestations will soon become obvious if the patient has this condition. On the other hand, if symptoms completely disappear, it is more than likely that bronchography will reveal a normal bronchial tree. If the patient has a history suggesting the presence of bronchiectasis prior to the episode of pneumonia, it is, of course, more likely that true bronchiectasis will result. In a patient in whom productive cough following pneumonia continues, bronchography should be considered within several months. Blades and Dugan (Pseudobronchiectasis, *J. Thoracic Surg.* **13**:40, 1944) stress the fact that atypical pneumonia can produce temporary enlargement of the bronchi, and they urge that surgical intervention be delayed in questionable cases until repeated bronchograms and the clinical features of the disease establish an unequivocal diagnosis of anatomic bronchiectasis.

TREATMENT OF STUTTERING

To the Editor:—*What has been done on the treatment of neuroses, especially stuttering, by the administration of carbon dioxide? I recently heard of good results from the periodic administration of carbon dioxide to the point of inducing unconsciousness.* *M.D., California.*

Answer.—Meduna reported favorable results with carbon dioxide treatment of stuttering in his monograph "Carbon Dioxide Therapy" (Springfield, Ill., Charles C Thomas, Publisher, 1950). He believes that stuttering is a psychiatric problem and that its treatment should be attempted by a speech specialist only under the direction of a trained psychiatrist. He thinks that speech training is unnecessary in the treatment of stutterers whose speech difficulty originated at an age when normal speech patterns had already been established. In these cases, if the carbon dioxide treatment removes or alleviates the underlying basic neurotic disturbance, the patient will resume his normal speech pattern. Meduna reported the treatment of 33 stutterers, of whom 11 achieved 100% improvement and 3 achieved 75% improvement. Seventy-five per cent improvement means that these patients still had some speech hesitancy or blocks but that these blocks occurred seldom, not more than a few times daily, and seemed unimportant to the patients. Two patients achieved 50% improvement, that is to say, their speech blocks and hesitancies were cut to half of what they had been before the treatment. Furthermore, these patients had the courage to speak to others, felt an increased desire to talk, and sought opportunities for social intercourse. Five patients achieved 25% improvement; their speech showed fewer blocks, repetitions, and substitutions than before treatment. They showed an ability to phrase and speak in voices of lower pitch. The speech situation no longer held for them the terror it had formerly held. If, for statistical purposes, these patients are divided according to degree of improvement, then 42% showed great improvement, 21% obtained some improvement, and 37% proved refractory to the carbon dioxide treatment. The treatments are given three times a week, and in some cases it is necessary to give as many as 60 or 70 treatments to achieve the desired results. If a patient shows no sign of improvement after about 20 or 30 treatments, continuation of the treatment will produce no results.

DIABETES AND CANCER IN THE AGED

To the Editor:—*Two editorials in* The Journal *Dec. 20, 1952, connect growth hormone with diabetes and cancer. A woman (in her late sixties, I believe) recently became afflicted with both. Is this combination of diseases common in the aged? She had a radical mastectomy for cancer and postoperative x-ray treatments. While at the hospital, it was found that she had diabetes. She is a diabetic type and arteriosclerotic. She had been continuously under high grade medical care and had undergone a thorough examination within two years. If it may be supposed her cancer and diabetes were preceded by an endocrine disorder and if the development of simple procedures that would routinely expose such a condition may be expected, then the time may be foreseen when this double affliction would be preventable. This is suppositious but contains the germ of an intriguing thought.* *M.D., Nebraska.*

Answer.—If the pituitary were directly concerned with cancer as well as with diabetes, the incidence of cancer in diabetics would be far greater. It is true that cancer as a cause of death of diabetics has risen from 1.5% in the period 1898 to 1914 to 9.2% in the period 1944 to 1951 coincidentally as the average duration of diabetes has increased from 4.9 to 14.3 years and the average age at death has risen from 44.5 to 64.7 years. This increase hardly seems greater than would be expected from the longer duration of exposure and the aging of the diabetic patient.

It is considered that above the age of 65, one woman in 45 and one man in 70 have diabetes and that one woman in 58 and one man in 39 have cancer. It is not surprising, therefore, that these two major diseases frequently co-exist in persons of this age. The occurrence of diabetes is favored by preceding obesity and a history of diabetes in relatives. Although most workers have concluded that cancer occurs more frequently in diabetics than in nondiabetics, the evidence for this is not conclusive, and the matter must be considered controversial. In the patient in question, it is unlikely that diabetes resulted from the x-ray treatment given postoperatively. To this consultant's knowledge, diabetes has not been produced experimentally by this means. As to the possibility that hormonal influences arising from the pituitary or adrenal glands may have been responsible for both diabetes and cancer, only speculation is warranted. As was brought out in detail in one of the editorials mentioned, there is a possibility that the growth hormone or a principle closely identified with it may play a prominent part in the pathogenesis of diabetes in the person with a hereditary background; however, at present this lacks direct confirmation. The possible role of the growth hormone in carcinogenesis in the human is even more in the speculative stage. Nevertheless, as stated by the questioner, the available data are thought-provoking.

SCORPIONS IN THE CAROLINAS AND ARIZONA

To the Editor:—*Kindly furnish me with information about the species of scorpion (Scorpionida) found in the Carolinas or refer me to literature on the subject. I am interested in knowing how poisonous this species is and how to treat the sting.* *Martin Crook, M.D., Spartanburg, S. C.*

Answer.—The scorpions most frequently found in the Carolinas are of the species Vejovis carolinianus. The reaction to their venom in human beings is mild, not nearly so severe as that experienced normally from the sting of a honeybee. The reaction to this scorpion's sting generally takes the form of a mild, local swelling accompanied by a sharp, burning sensation that lasts for about 15 to 30 minutes. Frequently, the patient experiences only the sharp burning sensation without the swelling. In the severest cases there may be slight ecchymosis. Cases of hypersensitivity to this venom have not come to the attention of this consultant, and, from the nature of the reaction, none are anticipated. Treatment is unnecessary, although liberal application of household ammonia or ordinary liquid household bluing is helpful. The application of ice to the site of the sting will give prompt relief from any pain experienced. The species Centruroides sculpturatus and

gertschi are the only two known lethal species in the United States, and these are confined to central and southern Arizona and the states immediately contiguous to it. For treatment of a sting by these species, a serum is available free to physicians and can be obtained from the Poisonous Animals Research Laboratory, Arizona State College, Tempe, Ariz. From this same source, a booklet on scorpions is available for 25 cents.

GLASS OR WAXED CARDBOARD SPUTUM CONTAINERS

To the Editor:—*At a hospital, it has been required that sputum be collected in glass jars when studies for acid-fast organisms are indicated. The use of disposable containers made of waxed cardboard is contemplated. The presence of acid-fast organisms in paraffin that are differentiated from tubercle bacilli with some difficulty has been reported. Should this fact lead to insistence that sputum for bacteriological study be collected in clean glass jars? Can the difficulty be obviated by autoclaving the cardboard containers?*

M.D., Arizona.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—Clean glass jars are preferable to disposable waxed cardboard containers for collection of sputum to be studied for tubercle bacilli. Although cardboard containers are in use in many places, they occasionally cause considerable difficulty because of the acid-fast organisms that may be present in paraffin. Since it is impossible to differentiate between tubercle bacilli and nonpathogenic acid-fast bacilli by microscopic inspection, any form of acid-fast bacilli seen in smears immediately causes suspicion of tuberculosis. Even though the organism is later proved by culture or animal inoculation to be nonpathogenic, the patient is caused inconvenience during several weeks of isolation and observation. Moreover, unnecessary treatment may be administered or necessary treatment delayed during this period. Dead acid-fast bacilli cannot be differentiated from those that are alive by microscopic inspection alone. Therefore autoclaving cardboard containers does not obviate this difficulty. Even when glass jars and slides are employed, it is essential that they be thoroughly cleaned before each collection and staining process with solutions containing concentrated sulfuric acid, which distintegrates tubercle bacilli that otherwise may cling to the glassware, no matter how thoroughly sterilized and washed. Some difficulties will be avoided by continuing use of clean glass jars rather than changing to waxed cardboard sputum containers.

Answer.—For morphological diagnosis of tuberculosis, paraffin boxes are objectionable for the reasons given. In addition, should the paraffin become warmed it will put a coating over ordinary bacteria that will often give a positive acid-fast stain. Experienced bacteriologists will, perhaps, detect the difference in structure, but all tubercle bacilli are not true to the textbook description, and it places too much responsibility on the examiner to have to make such a decision. There are many acid-fast artifacts and forms that may be mistaken for tubercle bacilli, and it behooves the examiner to eliminate as many as possible, because there will still be other factors interfering with diagnosis. Clean glass jars are recommended. Paraffin boxes would not interfere with culturing or animal inoculations. Autoclaving will not obviate the difficulty.

RH-NEGATIVE BLOOD

To the Editor:—*Is it ever rational to give an Rh-negative man a transfusion of Rh-positive blood?* *M.D., New York.*

Answer.—According to present knowledge, it is not permissible to give Rh-positive blood to an Rh-negative person if this can be at all avoided. It has been shown that a single injection of as little as 0.0067 cc. of packed Rh-positive red cells is sufficient to cause permanent immunization in an Rh-negative recipient. Since about 15% of the population is Rh-negative, a well-conducted blood bank should always have Rh-negative blood available.

NEPHRITIS IN YOUNG BOY

To the Editor:—*A 12-year-old boy had a Streptococcus infection of the throat for two weeks without medical attention. When brought to my office he had edema of the face and a blood pressure of 180/115; urinalysis showed many red blood cells and a slight trace of albumin. Since then, repeated urinalysis has shown from many to no red blood cells. Two months after the first visit the urine was almost completely negative; then red blood cells appeared again. The nonprotein nitrogen and blood urea nitrogen levels are always within normal limits. The Addis count as of Nov. 28 was as follows: red blood cells, 16,942,700; casts, 2,944; and white blood cells, 471,064. The blood pressure now ranges from 135 to 140 mm. Hg systolic and 80 to 90 mm. Hg diastolic, and the temperature from 99.2 to 99.4 F. The eyegrounds are normal. I prescribed absolute bed rest, a salt-free, low protein diet; and oral administration alternately of penicillin and oxytetracycline (Terramycin). Two specialists examined the patient. One advised keeping him in bed until 8 or 10 urinalyses are completely clear of red blood cells and continuous administration of antibiotics. The other advised that after three months the child be allowed to get up, the antibiotic therapy be stopped and exercise be gradually increased. Which is the proper management in this case?*

M.D., Virginia.

Answer.—It seems apparent that the patient has had excellent care. Conservative management is preferable to accepting any possible hazards because of a desire to speed up complete recovery. Continuation of bed rest and any indicated therapy is advisable until results of urinalyses justify a change of procedure.

STORED PLASMA

To the Editor:—*Our hospital has a large amount of human plasma that was originally placed in acceptable commercial containers and has since been stored in a Deepfreeze. This plasma must be treated to inactivate the virus of infectious hepatitis before it can be released for distribution. 1. What acceptable procedures exist for this purpose? 2. If irradiation with ultraviolet light is the only acceptable method, where is this equipment available, and what is its approximate cost? 3. Is there any time limit beyond which stored plasma would not be usable? 4. Is there any possibility that the virus in question may have been inactivated by prolonged storage at subzero temperatures?* *M.D., Illinois.*

Answer.—1. The acceptable procedures for treating plasma before distribution are outlined in "Minimum Requirements, Normal Human Plasma," 9th revision issued May 15, 1952, by the United States Public Health Service, National Institutes of Health, Bethesda, Md. 2. Equipment for irradiation of plasma with ultraviolet light is commercially available. The cost depends on what equipment is bought and how much plasma is handled per day. 3. The time limit for dried plasma is five years, for liquid plasma two years, and for frozen plasma five years from the date of venesection (according to "Minimal Requirements"). 4. As far as is known, at present, freezing at subzero temperatures may enhance preservation of the virus and certainly cannot be considered a good method for inactivation.

ANESTHESIA IN ECTOPIC PREGNANCY

To the Editor:—*1. What type of anesthesia is preferred for operation on a patient with a ruptured ectopic pregnancy and a blood pressure of 80/40? 2. Is spinal anesthesia contraindicated?* *M.D., New York.*

Answer.—1. A light plane of anesthesia obtained by means of an inhalational technique would be preferable, using a potent agent like cyclopropane and maintaining high oxygenation throughout the procedure, with adequate ventilation and use of curare for muscle relaxation. Cyclopropane will induce anesthesia rapidly, thus reducing the excitement stage to a minimum. 2. Hypotension and hemorrhage are usually considered contraindications to spinal anesthesia.

COMMUNICABLE DISEASES

TO THE EDITOR:—*Please advise a method designed to protect a handler of bodies of persons dead from contagious disease. What is the difference between contagious disease and communicable disease, relative to this problem? I would like a list of diseases resident in a dead body against which handlers need to be especially forewarned.*

M.D., California.

ANSWER.—The more that is learned about how infectious diseases are spread, the more difficult it becomes to adequately define "contagious disease." The term "communicable disease" is now preferred in many states and is the one used entirely in the American Public Health Association's pamphlet "The Control of Communicable Diseases in Man" (ed. 7, 1950). In Pennsylvania, 47 diseases (from actinomycosis to yellow fever) are declared to be communicable, and 43 are declared to be notifiable.

Procedures designed to protect handlers of bodies of persons dead from contagious diseases include such general measures as personal cleanliness of the handler; use of fresh washable costumes and rubber gloves; free use of running water at autopsy, with flushing of the walls, floor, and table before infected material can dry and be disseminated by air currents; and sterilization of instruments. In some special diseases or in cases in which the virulence of a relatively harmless disease, such as influenza, has been greatly stepped up in a pandemic, walls, floors, and furniture should be washed with a disinfectant, such as saponated cresol (5% solution), and the room thoroughly aired and, if possible, sunned. In infectious diseases spread by vectors, e. g., typhus, insecticides should be applied to the body and clothing. At least one state provides that in 12 named communicable diseases (cholera, bubonic plague, Rocky Mountain spotted fever, smallpox, yellow fever, typhus fever, relapsing fever, leprosy, scarlet fever, diphtheria, anterior poliomyelitis, epidemic cerebrospinal meningitis) the undertaker must "thoroughly disinfect by arterial and cavity injection with an approved disinfection fluid," and must "wash the surface of the body with an efficient germicidal solution" and "effectually plug the body orifices." It would have to be admitted, however, that in several of the 12 the mode of spread is not clearly understood, and protective measures are, therefore, only the result of guesswork, but perhaps the Department of Health and its advisory board are merely playing safe until more complete knowledge is available.

Diseases against which handlers of dead bodies should be especially forewarned include the following ones: Asiatic cholera, plague (especially the pneumonic forms), smallpox, tuberculosis (especially acute miliary and open or pneumonic pulmonary tuberculosis), bacteremia, meningococcic meningitis and influenza when epidemic, malaria, and yellow fever if the vector mosquito is known to be about. Fortunately, most of these are rare in this country. Each state in the union has its own rules and regulations for the control of communicable diseases, and, with the widely varying conditions existing in different parts of the country, no one set can cover them all. The American Public Health Association's pamphlet referred to above meets the situation by providing an "authoritative source of contemporary medical knowledge" in this field.

POLYCYSTIC KIDNEYS AND PREGNANCY

TO THE EDITOR:—*In the Feb. 21, 1953, JOURNAL (page 695), in Queries and Minor Notes is a description of the management of pregnancy in the presence of polycystic kidneys. No mention is made of the necessity for really adequate diagnosis of such a condition as unilateral polycystic kidney disease. Unilaterality has been reported, but it is rare. In the case described, the patient had pain in the right flank, gross hematuria, and a definitely abnormal pyelogram on the right side only. The left kidney is stated to be normal. A commoner disorder, which should be considered, would be a neoplasm of the right kidney.*

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DIFFICULT PROBLEMS OF HEMOGLOBINOMETRY

TO THE EDITOR:—*I was interested in Dr. Don H. Duffie's letter in THE JOURNAL Feb. 21, page 698, regarding a difference in photoelectrometric hemoglobin level determinations from the same specimen done by two laboratories. This example of discrepancy points up an error in photoelectrometry too long disregarded. A variation in line potential activating the instrument can cause this error. If a recording voltmeter is placed in position across the feed line and left in place for a week or 10 days, the result will be illuminating. An electric bulb producing a light energy of 50 candle power at a potential of 110 volts will not produce the same light energy with a potential of 90 volts. A greater light energy will be produced if the line potential is 125 volts. I suggest that each laboratory using a photoelectrometric instrument procure a suitable resistance unit equipped with a voltmeter. With this unit placed in position, the line potential operating the photoelectrometric instrument can be adjusted to an exact and reproducible voltage, for example, 100. The instrument must be recalibrated and the zero point marked, and all determinations must be read while the instrument is operating at this standard voltage. The line voltage should be recorded with each determination in the laboratory work book. In cases in which duplicate determinations are made in different laboratories, line voltage and the photoelectrometric readings should be recorded on the report of results. I hope that instrument manufacturers will some day build a line regulator and voltmeter into the instruments they produce.*

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EFFECT OF NITROGEN MUSTARD ON THE LIVER

TO THE EDITOR:—*In Queries and Minor Notes in THE JOURNAL Feb. 28, 1953 (page 781), is a question on the effect of nitrogen mustard on the liver. In the answer it is pointed out that experimental studies fail to support the views that significant liver damage results from the administration of nitrogen mustard and that the administration of nitrogen mustard to jaundiced patients carries some hazard, this latter view being based on the observations of Dameshek, Weisfuse, and Stein* (Blood **4**:*338 [April] 1949). I should like to draw attention to observations made by my associates and me on a number of patients with lymphomas and other neoplastic diseases treated with nitrogen mustard* (J. Lab. & Clin. Med. **40**:*387 [Sept.] 1952). In these patients serial liver function tests and liver biopsies were done, and in none could any adverse effect of nitrogen mustard be demonstrated. This was true of patients who were jaundiced as well as those who were not jaundiced and patients with varying degrees of hepatic function impairment prior to nitrogen mustard therapy. In fact, in some patients actual improvement of liver function and diminution of jaundice occurred with the response to nitrogen mustard administration. It is thought that these data substantially support the contention that hepatic damage from nitrogen mustard does not occur under ordinary circumstances.*

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DERMATITIS OF BUTTOCKS OF A CHILD

TO THE EDITOR:—*In Queries and Minor Notes in THE JOURNAL March 7, 1953 (page 876), the answer to the question on dermatitis of the buttocks of a child omitted mention of the commonest cause of this type of dermatitis, namely, the toilet seat. The varnish, paint, lacquer, the material out of which the toilet seat is made, or the detergent or antiseptic solution that is used to clean the toilet seat may be the causative agent.*

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